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NEWSLETTER

HEGGEL® ProBrick

January 2026

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Ultimate Protection for Critical Assets

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Structural Solution for Corrosion, Heat, and Mechanical Load

Protection as a Structural Requirement

Industrial facilities operating under aggressive chemical and thermal conditions demand protection systems that function as integral structural components rather than only surface protection, designed to deliver reliable performance under continuous chemical exposure, elevated temperatures, and sustained mechanical loading over extended operating periods.

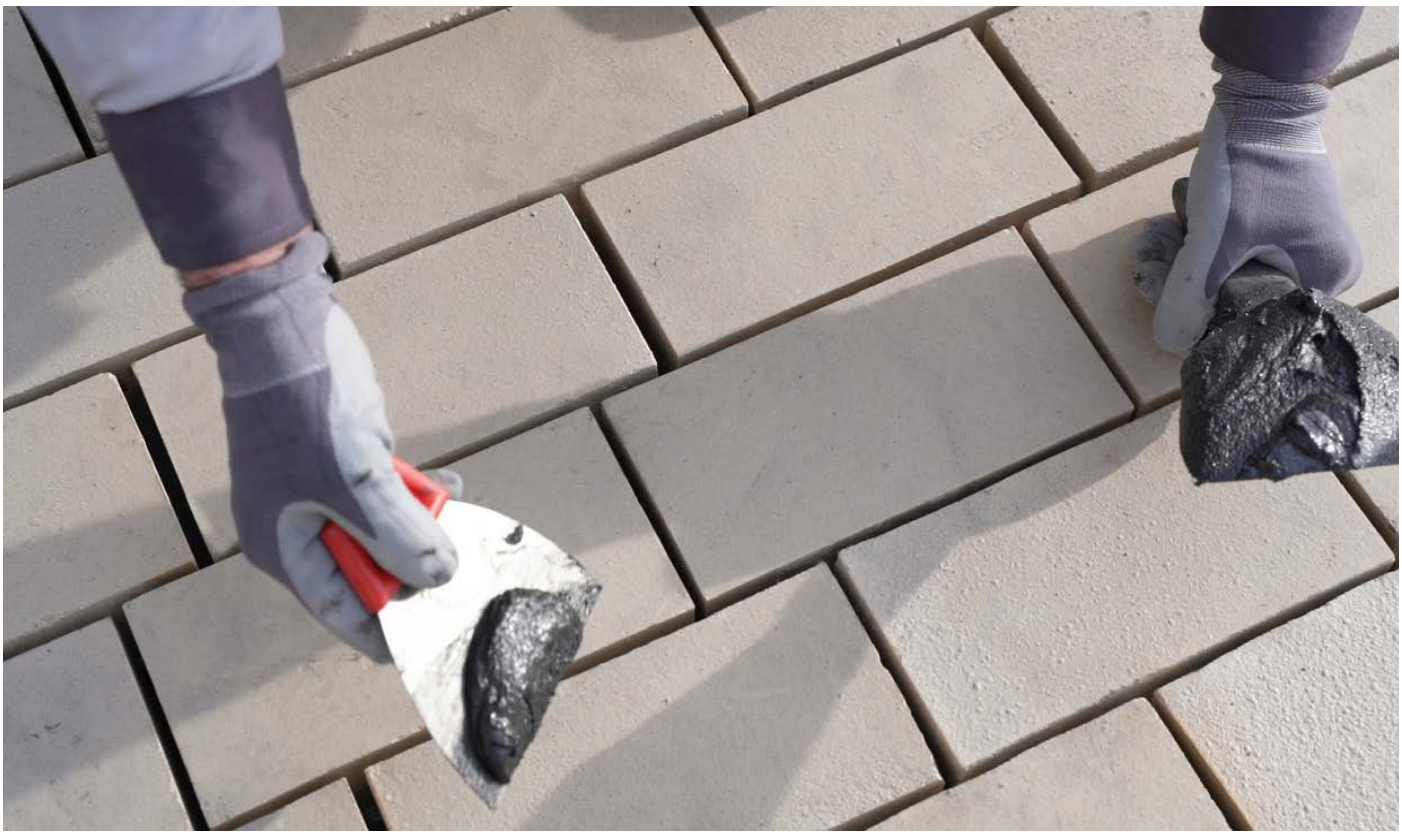
Such conditions are typical in industrial facilities handling acidic media, hot gases, aggressive condensates, and chemically reactive by-products. These environments impose combined stresses on materials, where chemical attack, thermal gradients, and mechanical forces act simultaneously. As a result, protection systems must deliver not only resistance, but also dimensional stability and load-bearing capability throughout the service life of the asset.

Industrial chimneys, incineration plants, chemical reactors, refineries, cement and lime production units, metallurgical facilities, glass manufacturing lines, and power-generation exhaust systems all share one common challenge: the lining system must remain stable and reliable under severe and continuous operating conditions.

Limits of Protective Solutions

Premature failures in aggressive industrial environments are rarely caused by a single extreme parameter. Instead, they result from the combined action of multiple degradation mechanisms acting over time.
From an engineering perspective, the most critical factors are continuous chemical attack from acidic liquids, vapors, or condensates; thermal stress caused by high operating temperatures and repeated heating–cooling cycles; and mechanical loading originating from structural weight, vibration, or process-related forces.

These factors interact continuously, gradually pushing protection systems beyond their design limits. Thin-film coatings and linings can perform very effectively in controlled environments. However, when chemical aggressiveness, thermal stress, and mechanical loads overlap, even minor defects may initiate cracking, loss of adhesion, or localized damage. Once the protective barrier is compromised, under-film corrosion can progress rapidly, often leading to unplanned shutdowns, safety risks, and costly repairs.

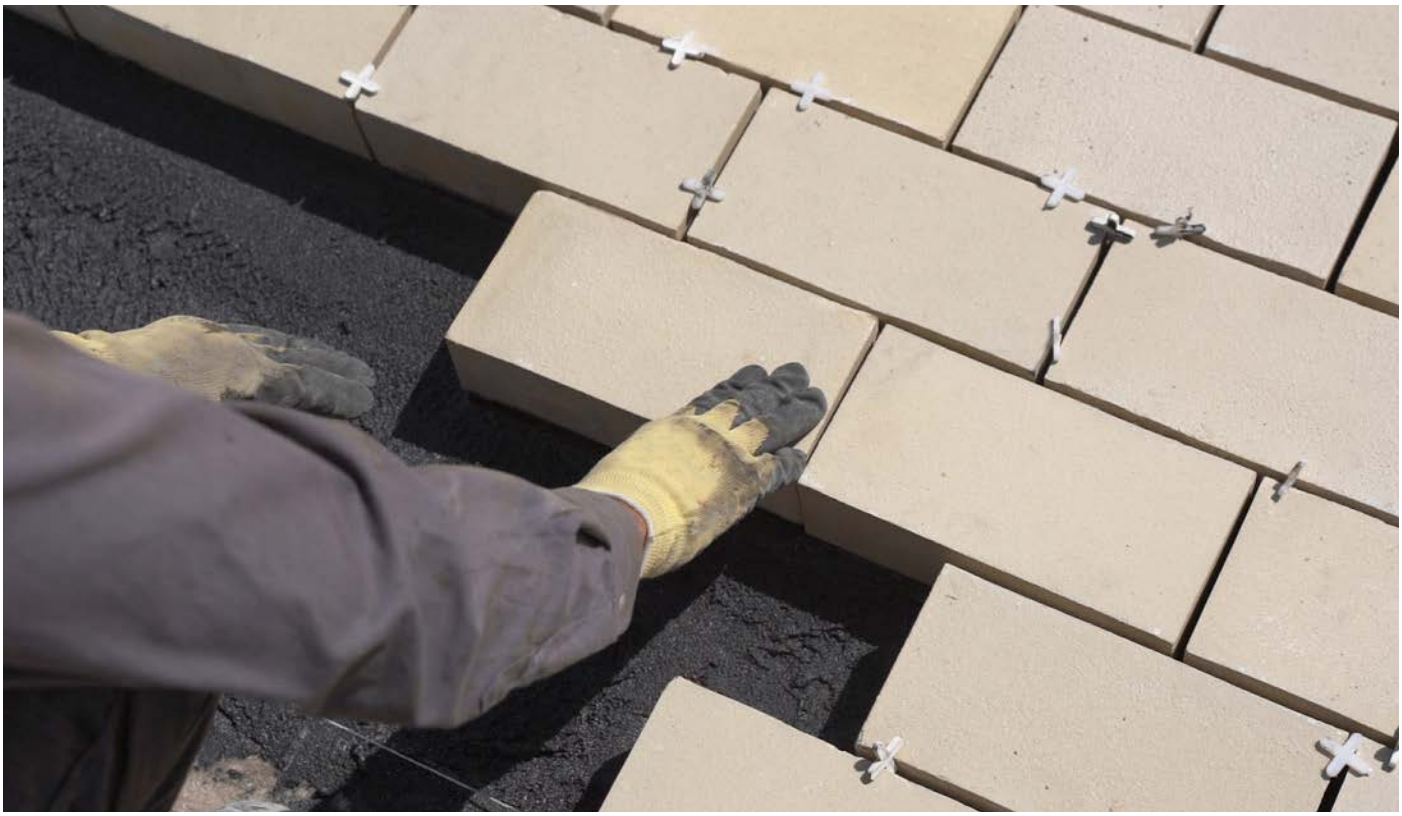


Brick Linings as Structural Protection Systems

Despite continuous development in coating technologies, acid-resistant brick linings remain a preferred solution for selected critical industrial applications. Their performance is based on material-intrinsic resistance, with chemical durability embedded throughout the entire cross-section of the material rather than relying on film thickness or adhesion alone. In addition, their high compressive strength enables brick linings to safely withstand static and quasi-static loads, making them suitable for load-bearing applications where coating systems cannot provide sufficient structural stability.

Thermal performance is equally decisive. Brick linings maintain dimensional stability at temperatures where many organic systems begin to soften or degrade. Controlled thermal expansion reduces internal stress and minimizes the risk of cracking during temperature fluctuations.

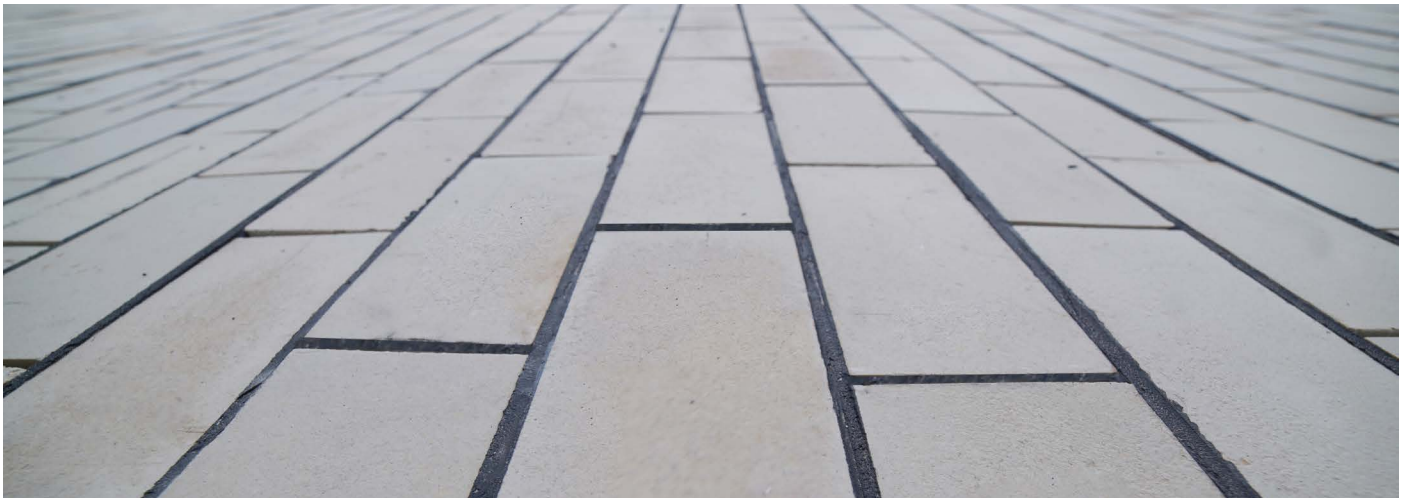
For these reasons and more, experienced engineers choose brick linings where failure would have safety, environmental, or economic consequences, where downtime must be minimized, and where long-term reliability outweighs short-term installation cost. In such applications, brick linings act as structural corrosion-protection systems.



From Traditional Brickwork to Engineered Industrial Solutions

As industrial processes have evolved, performance expectations placed on brick linings have increased accordingly. Modern installations demand bricks with defined chemical composition, controlled porosity, verified mechanical strength, and predictable thermal behavior, all supported by standardized testing and consistent manufacturing quality.

To meet these requirements, engineered acid-resistant brick solutions have been developed specifically for today's aggressive industrial environments.



HEGGEL ProBrick – Engineered for Severe Service Conditions

HEGGEL ProBrick is an acid-resistant industrial brick manufactured in accordance with ASTM C279 Type II, developed to withstand the combined chemical, thermal, and mechanical stresses encountered in demanding process environments.

Its formulation balances high silica content for acid resistance with alumina for mechanical strength and thermal stability, while carefully controlling alkali levels to limit long-term chemical reactivity. **HEGGEL ProBrick** is designed for use as part of a complete, system-engineered lining concept, supporting reliable long-term protection of critical industrial assets.

A Complete Protection Concept

In industrial practice, the durability of a brick lining is determined not only by the quality of the bricks, but by the interaction between all system components. For this reason, brick linings must be combined with compatible mortars and, where required, additional protective layers aligned with the process conditions.

HEGGEL ProBrick is applicable in combination with **HEGGEL** Vinyl ester mortars, Furan mortars, Phenolic mortars, Polyester mortars, and Epoxy mortars. In addition, **HEGGEL ProBrick** is usually used together with HEGGEL FRP systems to form a complete, multi-layer protection system.

This integrated approach allows brick linings, jointing materials, and composite systems to function together as a cohesive corrosion-protection concept for demanding industrial environments.

► Key Technical Data

Property	Standard	Typical Value	Unit
Cold Crushing Strength	EN 993-5	80	MPa
Apparent Porosity	EN 993-1	10.0	%
Water Absorption	EN 993-1	4.6	%
Acid Resistance	EN 993-16	0.80	%
Refractoriness under load (T05)	EN ISO 1893	1270	°C
Thermal expansion at 500 °C	EN 993-19	0.25	%
Bulk density	EN 993-1	2.17	g/cm³

The cold crushing strength of 80 MPa demonstrates the brick's ability to withstand high static and quasi-static loads, making it suitable for load-bearing linings and vertical structures. An apparent porosity of 10.0% represents a controlled balance between mechanical strength and resistance to penetration by aggressive media, while the low water absorption of 4.6% limits ingress of acidic liquids and reduces the risk of internal chemical degradation. Acid resistance tested according to EN 993-16, with a value of 0.80%, confirms suitability for long-term exposure to acidic environments under defined conditions. A refractoriness under load of 1270°C indicates dimensional stability when exposed

to elevated temperatures in combination with mechanical stress, which is critical for chimneys, ducts, and high-temperature process units. The low thermal expansion of 0.25% at 500°C minimizes internal stresses during heating and cooling cycles, reducing the likelihood of cracking, while a bulk density of 2.17 g/cm³ reflects a dense and mechanically robust structure that supports consistent performance and long service life.

Long-Term Reliability Through System-Based Engineering

When designed and executed as a complete system, **HEGGEL ProBrick** solutions support extended service life, reduced maintenance frequency, and improved operational safety. This system-based approach minimizes interface risks and enables predictable performance in installations where failure is not an option.

Strengthen Your Project with HEGGEL

Selecting the correct brick lining system requires a clear understanding of process chemistry, temperature profiles, mechanical loads, and installation conditions. **HEGGEL** supports engineers, EPCs, and asset owners with technical expertise from design through execution.

Contact **HEGGEL** to protect your assets with engineered confidence and long-term reliability.

Click here to contact our team and discover how our expertise can enhance your project.

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