



**HILDEBRAND
BRUNNER**

Rethinking Lumber Drying
With the power of the sun



**HILDEBRAND
SOLAR**

Solar cells for lumber drying – with no deposit required

Lumber drying is energy-intensive — and that is exactly where your strategic advantage begins.

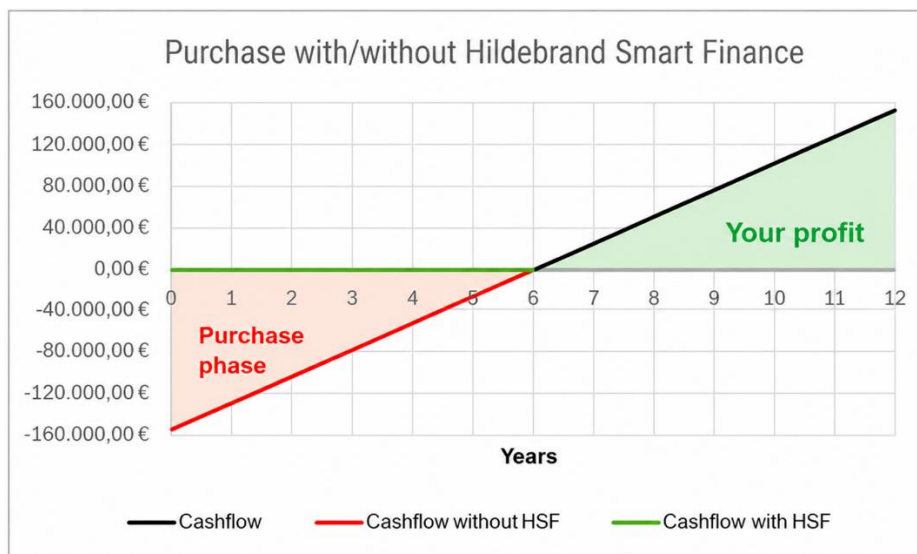
Those who generate their own electricity structurally reduce their production costs and become less dependent on rising energy prices. **HILDEBRAND Solar** combines decades of expertise in industrial lumber drying with modern photovoltaic technology to create a fully integrated self-consumption energy solution — without grid feed-in, without battery storage, and without unnecessary regulatory complexity. We use the power of the sun exactly where the energy is needed: directly in your drying operation. With our innovations **“Sunroof”** and **“Solar-Heat-Boost”**, every ray of sunshine becomes measurable production performance.



HILDEBRAND Smart Finance – Your solar power system at no extra cost

Instead of continuing to pay high prices for electricity from your utility provider, you can invest the money you save — interest-free — in your own solar power system. With Hildebrand Smart Finance, you'll start seeing significant annual savings on your electricity bills after just a few years without ever having to put up any of your own capital.

Every self-generated kWh replaces the full net purchase price of your electricity.



- ✓ €0 Down Payment
- ✓ Fair financing through real energy savings
- ✓ Independent from subsidy programs
- ✓ Refinanced within approx. 5–6 years
- ✓ 20+ years of stable self-generated electricity
- ✓ Protection against rising energy prices

Refinance Your Entire Dry Kiln

Thanks to a 25-year product warranty and a 30-year performance warranty on our PV modules, long-term and reliable energy savings are secured. Over this period, dry kilns equipped with HILDEBRAND Solar systems can fully refinance themselves through the generated solar energy — letting the sun pay for your investment.

How Solar Works for Your Drying Operation

- **Direct energy for your dry kilns and sawmill operations:** Circulation fans, controls, saws, conveyor systems and many other electrical consumers can be powered by self-generated solar energy
- **100% self-consumption without grid feed-in:** Every generated kWh is used directly within your facility
- **Much lower operating costs for your kilns:** Electricity becomes predictable instead of expensive
- **Perfectly integrated into HILDEBRAND systems:**
 - Maximize usable PV area with our **HILDEBRAND Sunroof** design
 - Convert solar power directly into dynamic process heat with **Solar-Heat-Boost**

Solar power for dry kilns with HILDEBRAND Power Station (HPS)

For centuries, lumber has been dried using the power of the sun — free of charge, but difficult to control. Today, solar energy can once again be used for lumber drying: not through traditional air drying, but through the targeted use of photovoltaics directly above the dry kilns.

Especially in industrial lumber drying, where high energy demand meets large available roof areas, this creates an ideal synergy.

With our HPS construction system, unused roof areas are transformed into productive energy infrastructure: fully integrated into your drying processes and designed for **100% self-consumption without grid feed-in**.



The HILDEBRAND Power Station (HPS)

For continuous kilns (HCK) and free industrial roof areas, HILDEBRAND Solar offers the advanced **HPS module construction** — engineered for continuous operation in demanding sawmill environments:

- ✓ **Industrial all-aluminum construction:** statically stable, bolted, corrosion-resistant
- ✓ **10° east-west A-frame design** for uniform daily energy production with low overall height
- ✓ **Bifacial glass-glass modules** utilizing reflective aluminum roofs (up to +20% additional yield)
- ✓ **Engineered ridge opening** for optimized rear ventilation and maximum reflection gains
- ✓ **Modular scalability:** from 100 m² up to >1,500 m² roof area
- ✓ **Seamless integration** into existing Brunner Vector control systems
- ✓ **Maintenance-friendly & durable** thanks to premium material quality (25+ year performance warranty)



HPS | Hildebrand Power Station

Profitability	
Price	from 130 €/m ² or from 600 €/kWp
Conditions	turnkey solution – incl. assembly, installation and commissioning
Payback period	3–5 years (<i>depending on electricity price and usage</i>)

However, not all companies have available roof space or continuous kilns. Many customers operate conventional lumber dry kilns (HTR), where usable roof area is heavily limited. This is exactly where the HILDEBRAND Sunroof solution comes into play.

The HILDEBRAND Sunroof – unlocking new spaces

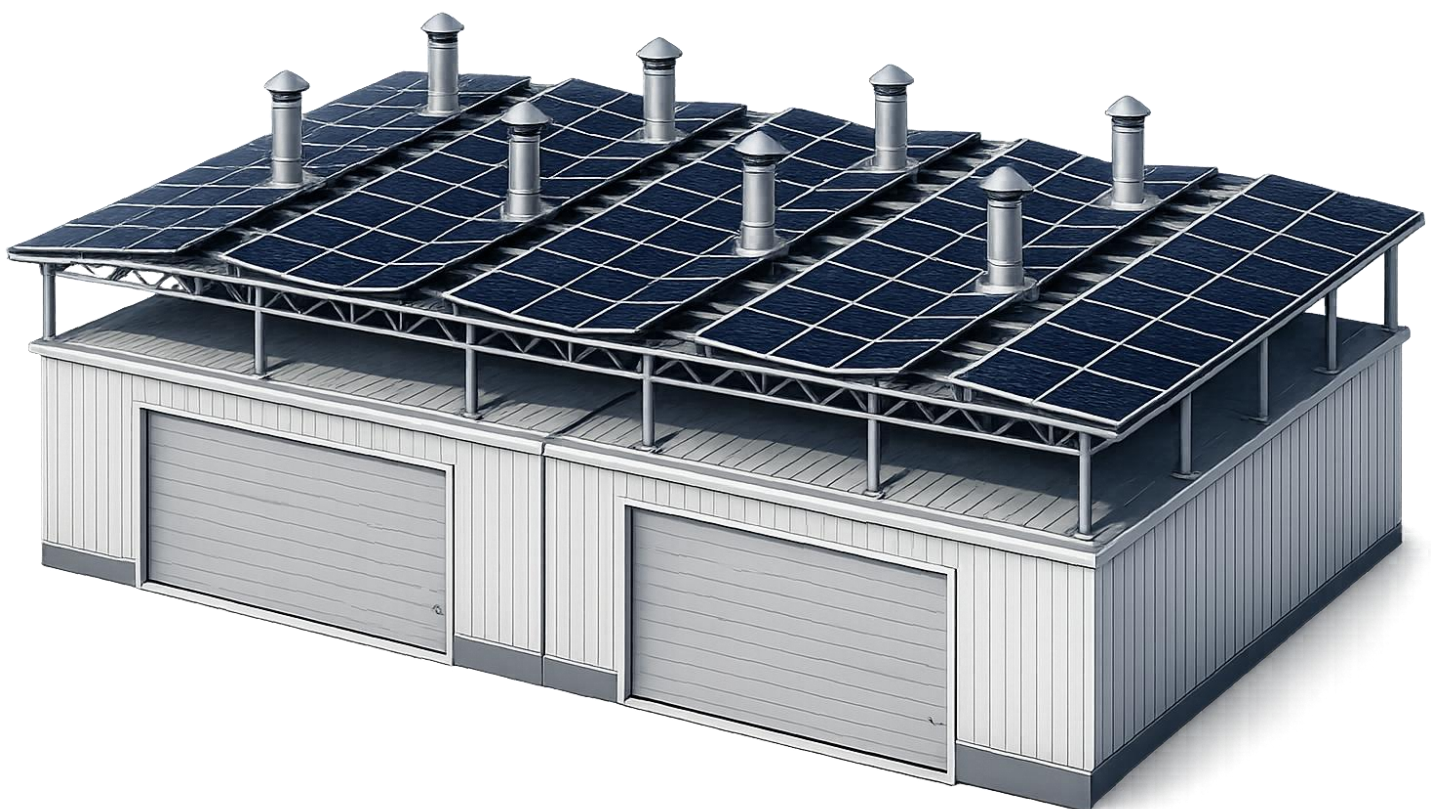
The Challenge: Economically utilizing dry kiln roofs

Conventional lumber dry kilns offer only approx. 50% effectively usable roof area for conventional PV systems. The main limitations are caused by the lumber drying process itself:

- Shading from roof structures such as heat recovery systems
- Steam and condensate formation from exhaust air
- Required maintenance access and safety clearances
- Different building heights of neighboring buildings and dry kilns

Our Solution: The HILDEBRAND Sunroof

Where previously unused roof space existed, a high-performance solar system is created. An additional roof structure is mounted directly onto the existing structures of your drying system — fully engineered and statically integrated into your kiln installation.



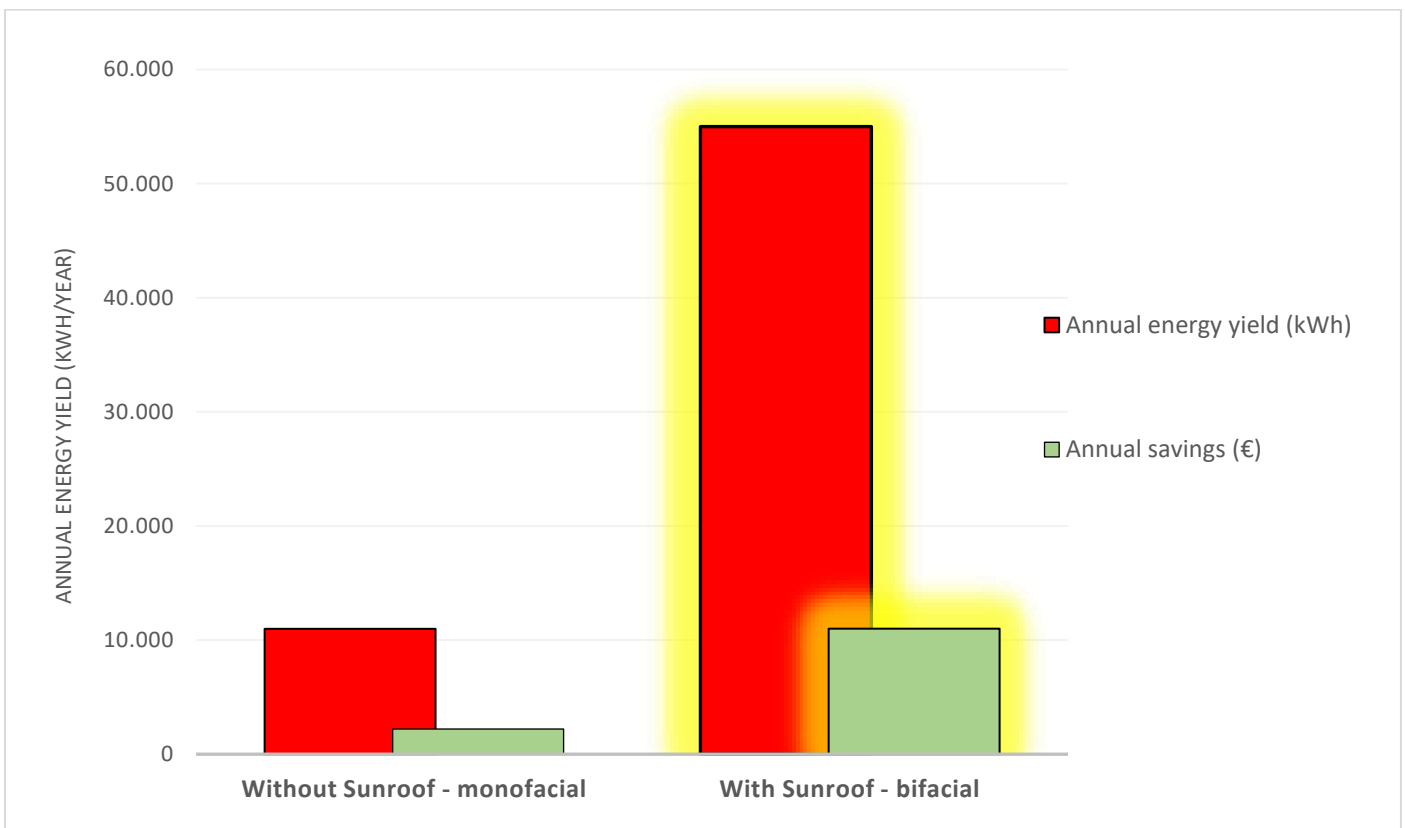
- ✓ **Up to 4x more usable PV area** through additional lateral overhangs
- ✓ **100% statically integrated** through rigid connection to the existing kiln structure
- ✓ **Up to 20% bifacial gain and stable daily yields** thanks to proven 10° east-west row design
- ✓ **Engineered ridge openings** for rear ventilation and maximum reflection gains
- ✓ **Strategic module spacing** to accommodate steam, condensate and exhaust airflow management
- ✓ **No limitations to the drying process** thanks to proven HILDEBRAND engineering quality
- ✓ **High wind and snow resistance** through full aluminum construction and defined load transfer

The HILDEBRAND Sunroof – Maximizing energy yield

Up to 5x higher solar yields with the HILDEBRAND Sunroof

Unlock new roof potential: For every 100 m² of kiln roof area, up to 220 m² of PV module area can be created — free from condensate and shading commonly found on conventional kiln roofs.

Dry kiln roof 100 m ²	Usable PV area	Annual yield	Annual savings	Payback period
Without Sunroof monofacial	50% (~ 50 m ²)	~ 11.000 kWh	~ 2.200 €	~ 6 – 7 years
With Sunroof bifacial	220% (~ 220 m ²)	~ 55.000 kWh	~ 11.000 €	< 4 years



More usable roof area. More energy yield. More savings. Faster payback.

Profitability	
Price	from 160 €/m ² or from 700 €/kWp
Conditions	turnkey solution – incl. assembly, installation and commissioning
Payback period	possible in less than 4 years (depending on electricity price and usage)



The dynamic energy boost: Solar energy for your high-power drying phases

Are your kilns struggling to reach target temperatures fast enough?

Especially during alternating climate drying processes, many boiler systems react too slowly to rapid load changes.

Our Solution: Solar-Heat-Boost

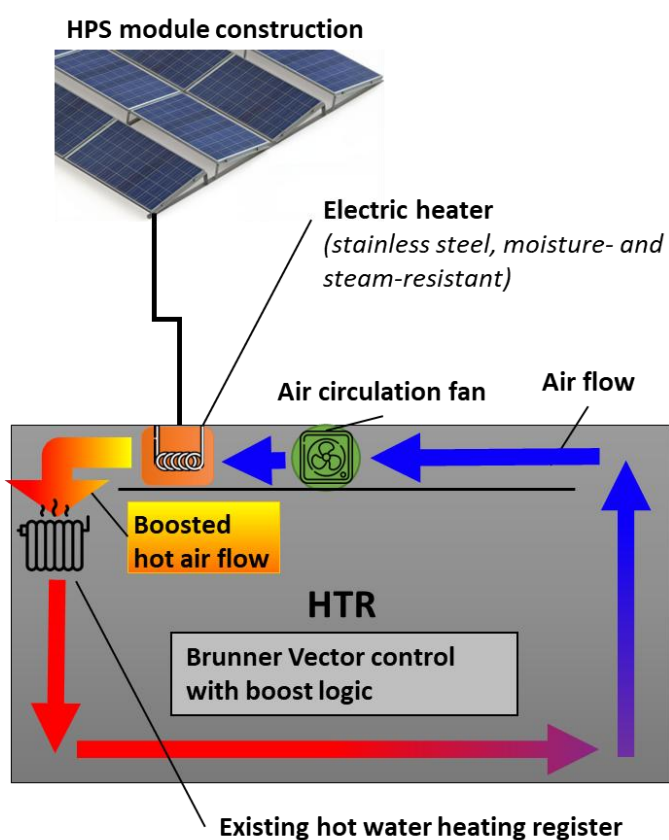
Excess PV power is **converted directly into heat**: exactly where it supports your drying process immediately.

- ✓ Ohmic resistance = nearly 100% conversion efficiency
- ✓ Heat available instantly and controllably
- ✓ No hydraulic inertia, no storage losses

Two system variants tailored to your plant:

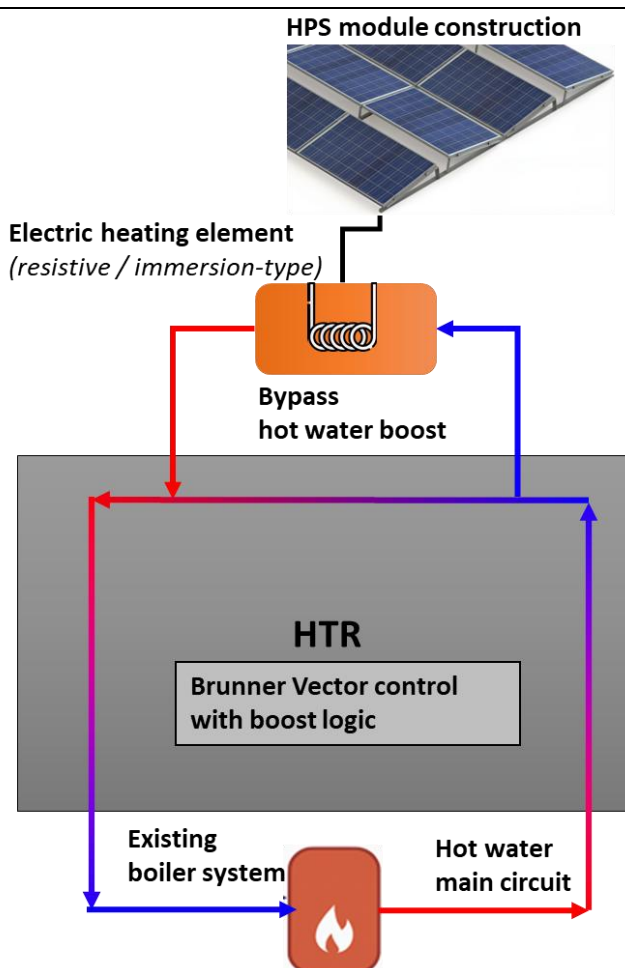
Electric heating coil inside the airflow (Direct-Boost)

- Direct integration into the circulation airflow
- Immediate local temperature boost per zone / section



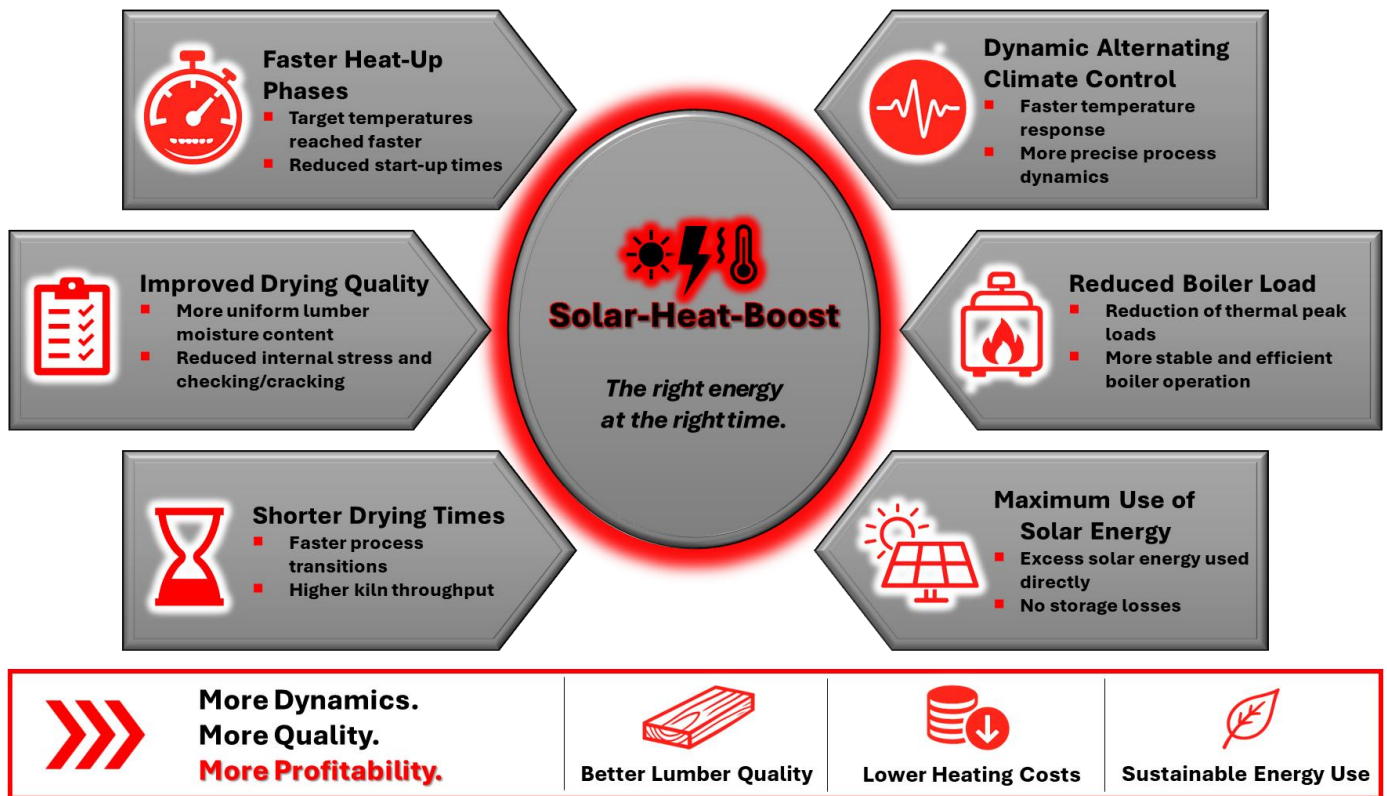
Hot water bypass with electric heating element (System Boost)

- Integration into the existing hot water circuit
- Flexible support and relief of the boiler system during peak load conditions



Let your lumber enjoy the alternating climate control!

Both system variants enable **faster heat-up phases**, **reduced thermal losses** and **highly dynamic alternating climate peaks** inside the kiln. Proven alternating climate processes can significantly reduce drying times while improving overall lumber quality.



Through integration with our intelligent Brunner Vector control system, the installation automatically adapts to available solar energy — **more efficiency, more flexibility and less downtime.**

Get the maximum out of every ray of sunshine

Combine our solar solutions: Whether HPS system, HILDEBRAND Sunroof or Solar Heat Boost — together we develop your customized complete solution.

It's that simple:

1. Visit us at www.brunner-hildebrand.com or contact us directly via email at solar@brunner-hildebrand.com
2. Request an **analysis of your available roof areas** and load profile.
3. We analyze your individual situation and provide a customized initial proposal including profitability forecast — **free of charge and without obligation.**



Lumber drying:

- All types of conventional kilns
- Vacuum kilns HIGH VAC in all sizes
- Continuous Kiln HCK Alexander
- Pallet kilns
- Heat treatment (IPPC)
- Steamers

- Energy and Quality Management
- Customized Kiln Controls
- Customized software solutions (GreenKilns, Alternating Climate...)
- Electronic Bolsters (HWPT)
- HILDEBRAND Solar

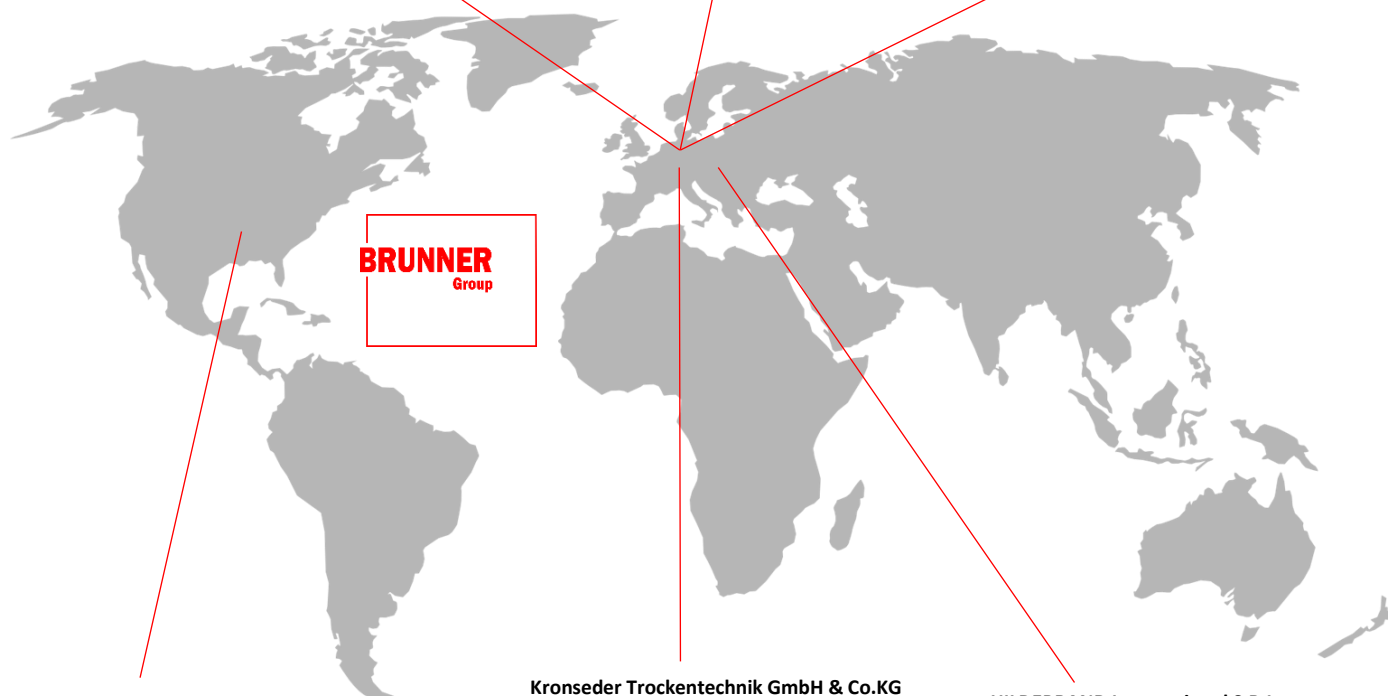
Other corporate divisions:

- Lightweight construction warehouses
- Steel construction buildings
- Shelters and canopies
- Continuous kilns for various construction materials
- Drying solutions for the textile and food industries
- Photovoltaics

BHSR Energie- und Umwelttechnik GmbH
Vorwerkstraße 9
30989 Gehrden
Germany
info@bhsr-leichtbauhallen.de

BRUNNER Trockentechnik GmbH
Vorwerkstraße 9
30989 Gehrden
Germany
info@brunner-HILDEBRAND.com

HILDEBRAND Holztechnik GmbH
Vorwerkstraße 9
30989 Gehrden
Germany
info@brunner-HILDEBRAND.com



BRUNNER HILDEBRAND Lumber Dry Kiln Co.
7516 Highway 70S, Suite 170
Nashville, TN37221
USA
info@brunner-HILDEBRAND.com

Kronseder Trockentechnik GmbH & Co.KG
Schwalbenfeldstraße 4
84137 Vilsbiburg
Germany
mail@kronseder-trockentechnik.de

HILDEBRAND International S.R.L
Str. Santaului no. 20
445300 Tasnad
Romania
info@brunner-HILDEBRAND.com

7516 Highway 70S,
Suite 170 Nashville,
TN37221 USA

Vorwerkstraße 9
30989 Gehrden
Germany

Tel: +49 (0)5108 64090
Service: +49 (0)5108 640940
Service USA: +1 615 662 0745

www.brunner-hildebrand.de
www.bhl-drykilns.com
info@brunner-hildebrand.com