



Lamella Technology

Spot- and laser-welded lamellas
for new and existing evaporation plants

www.gigkarasek.com

GIG Karasek Plate Heating Elements

Highest evaporation rates, optimum cleaning possibilities and minimal corrosion – even for heavily fouling substances

For decades, GIG Karasek has been a globally active plant manufacturer and expert in energy-optimized thermal separation technology. With dozens of international references, we are key supplier of high-quality plate- and tube-falling film technology, which is used successfully every day for the evaporation of moderately temperature-sensitive and low-viscosity substances.

Our plate falling film evaporators have an advantage over tube falling film evaporators, especially when high evaporation rates are required or heavily fouling substances need to be concentrated.

Functional principle

The substance to be thickened is concentrated along the plate heating elements (lamellas), which are arranged as a bundle in the evaporator.

The more volatile component is evaporated and discharged out of the apparatus. Optimized distribution systems are used to ensure the best possible distribution of the substance on the heating bundle and thus a high evaporation rate.



Interested to learn more? Watch our video!



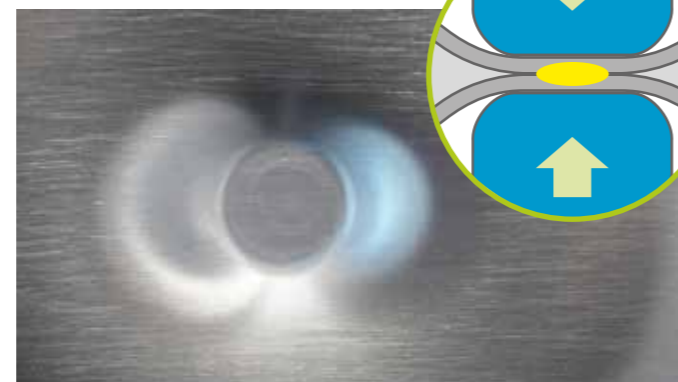
POWER Spot Lamella - Spot-welded plate heating element © GIG Karasek

POWER Spot Lamella Spot-welded lamella

Our spot-welded lamellas are characterized above all by their resistance to fouling and corrosion, as the welding spot does not come into contact with the substance.

In a **forming process specially developed by GIG Karasek**, the welding spots are not exposed to any force during the forming process of the lamellas. This minimizes material deformation and stresses at the welding spot. In combination with our fully closed edge welding, the product impresses with a very long lamella lifetime.

The distances between the welding spots are adapted to the respective application. This means that spot-welded lamellas can be designed with a larger plate volume, reducing pressure losses during operation.



Spot welding features a very smooth surface. © GIG Karasek

Continuous edge welding © GIG Karasek



LASER Luxe Lamella Laser-welded lamella

With our laser-welded lamellas, we apply the advantages of our special forming process and thus minimize the stresses at the weld seams.

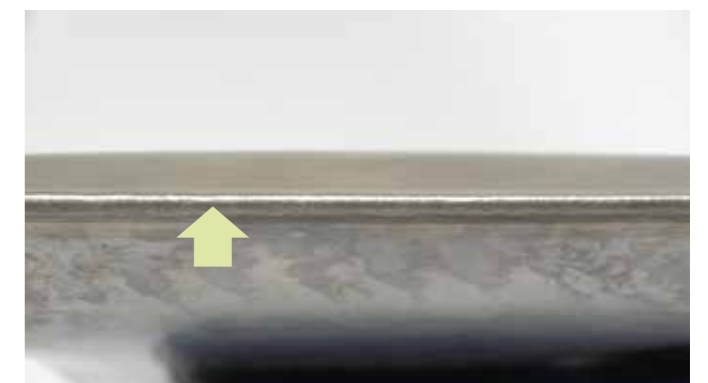
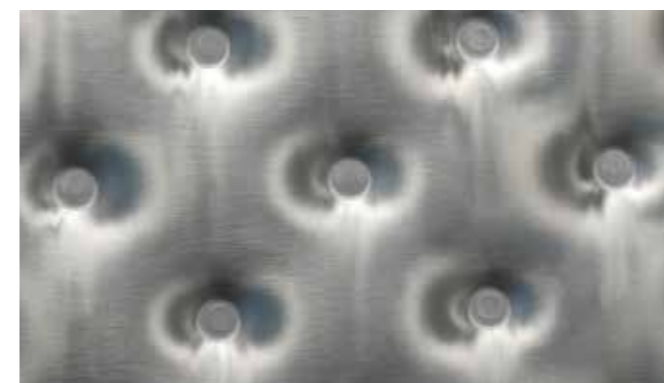
The edges of the lamellas are designed identically to the spot-welded lamellas. However, thanks to our forming process, we can also implement the **larger plate volumes for minimal pressure losses** for laser-welded lamellas.

Thus, we offer an advanced version of the standard laser lamellas for maximum lifetime.



LASER Luxe Lamella - Ring-shaped weld seam with laser welding © GIG Karasek

The edge welding is the same for spot- and laser-welded lamellas. © GIG Karasek



Lamellas in comparison

Highest quality begins in the detail – the advantages of the GIG Karasek forming process for spot- and laser-welded lamellas

POWER Spot Lamella – spot-welded		
Weld seam heating surface	Forming process: No deformation or force applied to the weld seam during the forming process of the lamellas	<ul style="list-style-type: none"> Bursting – minimal risk Minimal stress on the weld seam
Edge welding	Fully closed edge welding	<ul style="list-style-type: none"> Durable lamella edges No crevice corrosion possible Maximum utilization of the heating surface
Surface	Very smooth, minimal surface unevenness	<ul style="list-style-type: none"> Fouling – minimal risk Corrosion – low risk
Weld pattern	Forming process: Variable weld pattern adapted to the application possible	<ul style="list-style-type: none"> Maximum lamella height possible Low pressure loss in the lamellas Energy-efficient heating up
Formats	All GIG Karasek standard formats	

LASER Luxe Lamella – laser-welded		
Weld seam heating surface	Forming process: No deformation or force applied to the weld seam during the forming process of the lamellas	<ul style="list-style-type: none"> Bursting – minimal risk Minimal stress on the weld seam
Edge welding	Fully closed edge welding	<ul style="list-style-type: none"> Durable lamella edges No crevice corrosion possible Maximum utilization of the heating surface
Surface	Ring-shaped laser weld seam	<ul style="list-style-type: none"> Fouling – low risk Corrosion – minimal risk
Weld pattern	Forming process: Variable weld pattern adapted to the application possible	<ul style="list-style-type: none"> Maximum lamella height possible Low pressure loss in the lamellas Energy-efficient heating up
Formats	All GIG Karasek standard formats	

Standard laser-welded lamellas on the market		
Weld seam heating surface	Direct application of force and deformation at the weld seam during forming lead to stresses in the weld zone.	<ul style="list-style-type: none"> Negative influence on lamella lifetime possible
Edge welding	„Open“ edge, weld seam is positioned inwards	<ul style="list-style-type: none"> Crevice corrosion is possible Heating surface is lost
Surface	Ring-shaped weld seam, slight unevenness	<ul style="list-style-type: none"> Fouling – low risk Corrosion – minimal risk
Weld pattern	Tighter weld pattern required so that the laser weld can withstand the stresses when forming the lamella	<ul style="list-style-type: none"> Lower panel height possible Higher pressure and energy losses
Formats	Manufacturer-specific formats and materials	

Everything from a single source

For individual customer requirements – GIG Karasek supplies different lamella formats, materials and welding processes



OUR ADVANTAGES

- ◆ **Flexibility** in terms of formats, materials, welding processes and customer-specific requirements
- ◆ **Minimal risk of fouling**
- ◆ **Minimal risk of corrosion**
- ◆ **Long lifetime**
 - ◆ No stress or deformation of the weld seams during production
 - ◆ Robust edge welding
- ◆ **Optimum utilization of heating surface**
- ◆ **Optimized spot- and laser-welded lamellas**

DIN	AISI	SS
1.4301	304	2332
1.4306	304L	2352
1.4307	304L	2352
1.4404	316L	2348
1.4432	316L	2343
1.4435	316L	2353
1.4436	316	2343
1.4162	-	2101
1.4462	318LN	2377
1.4539	904L	2562
1.4571	316TI	2350

GIG Karasek lamella formats

Area (m²)	Width (m)	Length (m)
17,8 m²	1.218	7.315
24,6 m²	1.218	10.110
27 m²	1.500	9.000
36 m²	1.500	12.000
Individual lengths possible		

Manufacturing and quality assurance

Quality „Made in Austria“ through inhouse production and comprehensive quality assurance

Lamella manufacturing

The production of lamellas for plate falling film evaporators has been one of our core competencies for decades and is constantly being developed further.

The heating elements are produced in our state-of-the-art inhouse lamella production facility in Gloggnitz, Austria.

Bundle production - step by step

- ◆ Lamellas are welded to a bundle with the help of distance profiles
- ◆ Welding of steam inlets and condensate collectors
- ◆ Production of distribution trays and accessories
- ◆ Certified pressure test
- ◆ Pickling and passivation of the bundle
- ◆ Packaging and transport documents
- ◆ Complete documentation

Quality assurance

Like our customers, we have the highest quality standards and subject all our lamellas to the most stringent inspection:

Weld spots

- ◆ Automatic electronic documentation of the welding parameters for each welding spot
- ◆ Failure report when tolerance values are exceeded
- ◆ Additional visual inspection

Lamellas

- ◆ Pressure test for each lamella
- ◆ Burst pressure test for each production series

Bundle

- ◆ Pressure test for each bundle, if required under external supervision (notified body)
- ◆ Pressure or leakage test after installation according to customer requirements

Lamella bundle manufactured at our production facility © GIG Karasek



Retrofitting and Debottlenecking

Overcome performance bottlenecks and increase system efficiency with targeted modernizations and conversions

Small but targeted changes often make a big difference when it comes to ...

- ◆ maintaining systems and equipment at the highest level of performance over the entire lifetime or prolonging the lifetime ...
- ◆ adapting production processes to changed circumstances or ...
- ◆ increasing production efficiency.

With our specialized process and manufacturing expertise, we support you with **retrofitting**, **revamping** and **debottlenecking**. Based on a comprehensive analysis of the initial situation, simulation models and individual solution proposals, we coordinate each optimization project precisely with our customers.

In the area of falling film evaporators, we pursue two approaches in terms of **bundle replacement**:

Retrofitting

End-of-life bundles are replaced with new bundles. The system conditions – including the plate dimensions and evaporation surface – remain the same. With this simple but effective conversion of existing falling film evaporators, your system is modernized in the shortest possible downtimes and at the lowest possible cost.

Debottlenecking

Problem areas in the process are examined and eliminated in a targeted manner, but with more extensive measures. End-of-life bundles are replaced and also the evaporation surface is redimensioned. The production capacity is improved by an investment that is still significantly smaller when compared to a new system. In this case, too, it is important to us to keep downtimes as short as possible and to guarantee the safety of the system at all times.



Installation of a new lamella bundle © GIG Karasek



Read more about our projects in the **GIG Karasek Insights!**



We develop ♦ efficient ♦ competent ♦ cooperative ♦ proactive ♦ goal-oriented ♦ reliable customized process solutions and systems according to your requirements.

Regardless of the scope of services, our aim is to optimize your production facilities with tailor-made solutions in terms of product quality and processes. Where other companies reach their limits, we find ways to process your material flows by combining various process steps that have been developed over decades. A high level of expertise and personal all-round service make GIG Karasek your reliable partner for unique challenges.



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