

Gerresheimer

# WORLD-CLASS QUALITY WITH EXTENSIVE UPGRADE AND STATE-OF-THE- ART TECHNOLOGY

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Gerresheimer's Primary Glass Packaging plant in Chicago Heights, Illinois, is its only plant in the US manufacturing type I borosilicate glass for moulded pharmaceutical packaging products. In late summer 2015 it not only secured a new furnace, but also underwent extensive conversion and modernization measures.

## PHARMA GLASS

### IMPORTANT INVESTMENTS

Gerresheimer has made a mid-range double-digit million USD investment – almost USD 30 million – in the Chicago Heights plant with the objective of meeting both present and future customer requirements as increasingly stringent standards are introduced. Higher levels of quality will be possible as a result of investments in the best-available production and inspection technology, and infrastructure optimization. Efficient resource utilization and environmental friendliness were also key considerations.

The investment programme was set up with the objective of meeting both present and future customer requirements as increasingly stringent standards are introduced. Higher levels of quality, the more efficient use of resources and a better environmental footprint will be possible as a result of investments in the best-available production and inspection technology, and infrastructure optimization.

### CHICAGO HEIGHTS

Gerresheimer's plant in Chicago Heights, Illinois (US) is



the only plant in the US manufacturing type I borosilicate glass for moulded pharmaceutical packaging products. This type of glass is suitable for very sensitive pharmaceuticals such as injectable drugs because of its excellent hydrolytic resistance and low alkaline leach rate. Gerresheimer has five other moulded glass plants in addition to the US

Chicago Heights plant; four in Europe and one in India. The former moulded glass plant in Millville, New Jersey (US) was closed to consolidate American moulded glass operations across North America, although warehousing and distribution operations have remained in Millville.

The Chicago Heights plant, which has been part of the Gerresheimer Group since 1999, installed a brand new furnace this year. It closed for two months in July and August 2015 to also implement an extensive conversion and modernization programme. The 150-strong team

### CHICAGO HEIGHTS - FACTS AND FIGURES

#### Product portfolio

<b>Core segment</b>	Pharmaceutical glass packaging
<b>Product range</b>	From 3ml single-dose vials for injectable drugs to 1 litre glass bottles, core sizes of 10 ml, 20 ml, 30 ml, 50 ml and 100 ml.
<b>Specialty</b>	High-quality pharmaceutical serum bottles

#### Technical data

<b>Furnace</b>	1
<b>Lines</b>	3
<b>Colour</b>	flint
<b>Type</b>	type 1

#### USP, EP & JP standards

#### Sulphur treatment, EP

#### Controlled environment at the cold end (inspection and packaging)

#### In-house mould design and mould shop

#### Safe Pack technology

#### ISO 9001:2008



is now back at work and the plant's production operations have recommenced with new maximized quality, efficiency and environmental standards.

The manufacturing process of mixing raw materials, melting and forming the glass remains the same.

The improvements predominantly affect the following aspects of the production process:

- Batch mixing and delivery
- Melting and bottle forming
- Inspection and packaging
- Supporting infrastructure (e.g. compressed air, gas, oxygen delivery, power supply)

The entire conversion and renovation process focused on particulate reduction. Maximizing hygiene standards is the number one priority in eliminating particulate and preventing patients from being harmed by a contaminated glass bottle.

### HOT END: NEW FURNACE AND INCREASED CAPACITY

Both the furnace and the steel base underneath the furnace have been replaced. The new furnace has 20 per cent higher capacity and significantly lower energy consumption per tonne of glass. Raw material supply and batch house automation, plus modern furnace control systems, have significantly improved efficiency at the hot end.



## GERRESHEIMER PHARMA DAYS USA

The seventh Gerresheimer Pharma Days will be taking place in the US (Chicago and Chicago Heights) on 25 and 26 May 2016. The first day will be dedicated to current pharmaceutical topics with a focus on innovation, technology and quality. External keynote speakers, CEO Uwe Röhrhoff and his management board colleague Andreas Schütte (responsible for the Plastics & Devices Division) will be attending, and Gerresheimer experts will bring attendees up to date on company innovations and on the latest news and developments in pharmaceutical packaging and medical devices. The second day will be dedicated to a tour of the new production unit at Chicago Heights.



Two of the three production lines are new; the third line underwent a general overhaul.

Two IS (individual section) machines now operate with triple-gob technology. The additional cavities that have been installed significantly increase the production output and modern camera systems perform dimensional and visual inspections for early detection of non-conformities and defective products. The compressed air supply unit near the IS machines has been completely replaced. All production lines have new and larger annealing ovens, and the annealing oven on the third line was given a general overhaul. Finally, cullet from the hot end is now conveyed to a brand new quench tank.

### COLD END: EXTENSIVE MODERNIZATION OF INSPECTION AND PACKAGING TECHNOLOGY

The higher production output after the conversions made a cold-end redesign and upgrade necessary. All inspections and packaging operations now take place in controlled environments and all the in-line inspection systems have been modernized and standardized.

Safe Pack technology has been upgraded so that larger containers can also be thermo-sealed. A new layout for the cold end has also reduced the number of actions involved in the packaging process.

### MISSION - PARTICULATE REDUCTION

The USA's FDA (Food and Drug Administration) is strongly committed to eliminating particulate in injectable drugs to improve patient safety. Gerresheimer customers in the pharmaceutical industry contribute to particulate reduction in

## PHARMA GLASS



their section of the supply chain, which involves washing, filling and sealing, whereas company efforts are focused on manufacturing particulate-free glass packaging.

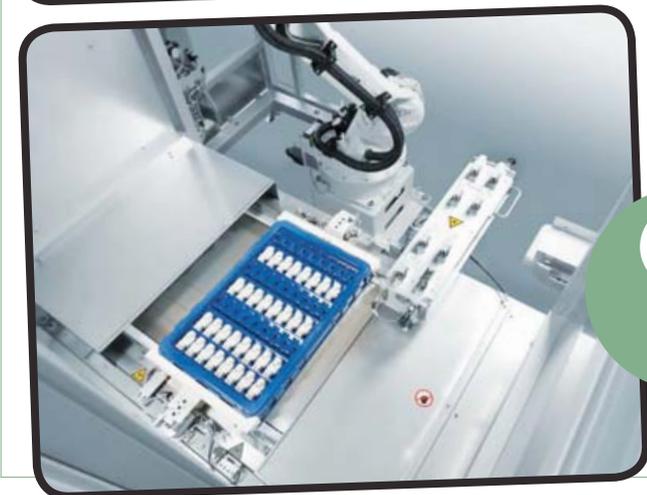
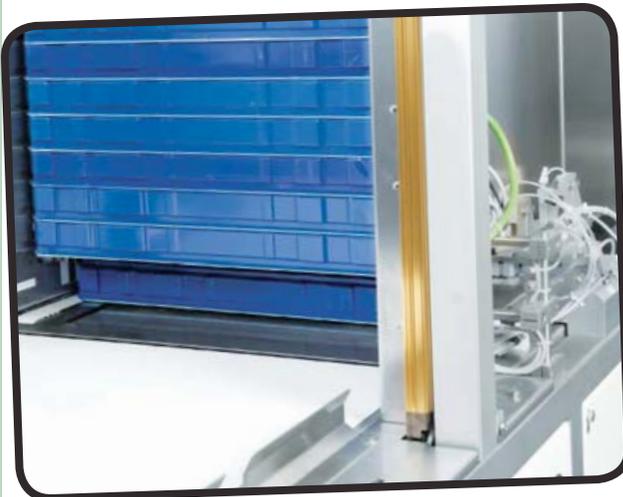
So the Chicago Heights upgrade and conversion project

aimed to re-engineer the plant to satisfy even the strictest particulate requirements. The project also saw the introduction of innovative and patented technology at the Chicago Heights plant. Moreover, optimizing furnace, feeder and mould clean-

ing processes and the use of different materials have significantly reduced particulate contamination. State-of-the-art inspection systems also check the glass products for contamination and reject the ones that are not up to standard before they are delivered to the customer.

### RESOURCES

Resource conservation and responsibility towards the environment played an important role in the conversion of the Chicago Heights plant. Gerresheimer has been involved in the Carbon Disclosure Project for seven years. The goal is to reduce the ratio of CO<sub>2</sub> emissions to revenues. State-of-the-art melting technology has allowed the Chicago Heights plant to substantially reduce energy consumption and CO<sub>2</sub> emissions per tonne of molten glass. Moreover, the new IS machines and annealing kilns operate considerably more efficiently, and the new compressed air supply units ensure that less resources are needed. ■



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