REINVENTING GLASS MAKING: INNOVATION & TECHNOLOGY

Innovation & technology are core drivers for O-I. The Company was born from innovation when its founder, Michael Owens, invented the first glass manufacturing machine 120 years ago. That same spirit of innovation in glassmaking lives on today, as more than **24,000 employees globally work with customers and partners to define the future of glass.**

O-I is harnessing the power of Innovation and Technology to anticipate consumer trends, meet customers' needs to drive brand differentiation, and **unlock new opportunities into markets not yet accessible to O-I Glass.**

O-I'S MAGMA TECHNOLOGY

MAGMA (Modular Advanced Glass Manufacturing Asset), is O-I's revolutionary, flexible, modular glass production system, complementing and optimizing the existing production network and it will allow O-I to:

Enter fragmented, emerging and new markets by deploying new capacity in smaller increments, quickly and cost efficiently.

Enable the development of novel **business models** and **partnerships with customers.**

Set new standards in glass manufacturing, allowing O-I to reduce water usage, minimize fugitive emissions and use more recycled content.

Bring glass packaging to customers where they need it, when they need it in a sustainable manner.

MAKE WHAT **MATTERS**

O-I MAGMA

TECHNOLOGY FEATURES

SIZE

A MAGMA melter is about the third of the size of a heritage furnace. Its **smaller melter** easily allows the addition of more MAGMA lines as markets grow or to enter new markets.

FLEXIBILITY

It allows greater flexibility for **smaller production runs,** including frequent job and color changes thanks to on-off capability, and can support multiple product categories at one time.

DEPLOYMENT

Deploying directly where the demand is – in the future, it can be near- or co-located with customers' filling lines, thus improving surety of supply, reducing shipping distances and the environmental footprint.

SPEED

Faster and less capital intensive deployment – a MAGMA line is modular, pre-fabricated, and can be deployed in half the time of heritage technology.

MOBILITY

Unlike a traditional furnace, a MAGMA melter can be **moved and redeployed.**

O-I MAGMA technology melter in Streator plant, Illinois

LIGHTWEIGHTING

In addition, another O-I technology project is planned to benefit both our heritage production and the new MAGMA lines. **ULTRA is our breakthrough innovation program** reducing the weight of glass containers by up to 30% while maintaining current performance levels. ULTRA is set to provide even more flexibility, improve margins and reduce the greenhouse gas footprint of each bottle.

O-I MAGMA technology production – forming machine – Streator plant, Illinois

MAGMA ROADMAP

MAGMA technology continues to evolve through a multi-generational development roadmap.

GENERATION 1

Consists of a new type of melter, connected to a conventional line, operating with gas-oxy combustion for superior energy efficiency and enhanced sustainability. The first phase at full production has been scaled in Holzminden (Germany).

GENERATION 2

Currently validated in O-I's pilot plant in Streator, IL., adds a modular batch supply system and a new forming concept. The first full-scale line is planned to be deployed in the new greenfield manufacturing facility in Kentucky in mid 2024.

GENERATION 3

Planned to be piloted in 2025 in O-I's forthcoming new plant in Bowling Green, KY. It will be set to add full digitalization, predictive processes, all-new lightweighting capabilities, waste heat recovery and more sustainability features.

MAGMA: making glass an even **more compelling choice** for consumers, customers and the environment.

FORWARD-LOOKING STATEMENTS

These materials contain "forward-looking" statements. It is possible that the company's future financial performance may differ from expectations due to a variety of factors. Any forward-looking statements in this document are based on certain assumptions and analyses made by the company in light of its experience and perception of historical trends, current conditions, expected future developments, and other factors it believes are appropriate in the circumstances. Forward-looking statements are not a guarantee of future performance and actual results, or developments may differ materially from expectations.