



Smart Manufacturing for the Future



Automated system for the production of high quality gold and silver grains



### WHAT IS T-GRAINS

T-Grains™ creates the ideal conditions for the production of **prime-quality gold and silver grains**. Our automated system consists of a set of machines which can replace the operators' lengthy and hazardous manual task of **pouring molten metal in the graining tank**. Moreover, the installation was conceived to **avoid a decrease in melting temperature**, while metal is being moved to the graining tank. This was made possible by placing the metal casting die inside a heated housing provided with a specific inductor. But there is more. Thanks to T-Grains™, we have **minimized the contact time between molten metal and air**, and hence oxygen. This is particularly important for the **production of flawless grains**. Since the water temperature, with which the molten metal comes into contact, is also key to achieve high-quality gold and silver grains,

*The productivity varies according to the tilting furnace capacity.*

the T-Grains™ graining tank is also connected to a **cooling system** by a recirculating pump.

The system ensures therefore that the cooling water maintains a constant temperature for each production batch.

In order to process different metals, one tilting furnace can be used and **specific crucibles for each metal type** can be installed.

However, in order to **avoid cross contaminations**, all the following production steps must be carried out in different machines for each metal type. As a matter of fact, in order to obtain metal grains as pure as possible, one may use the same tilting furnace for all metals, but the pouring channel, the heated die, the tank as well as the bucket conveyor belt must be different for gold and silver.

**T-Grains is available as:**



STAND ALONE  
TECHNOLOGY



SEMI AUTOMATIC  
TECHNOLOGY



FULLY AUTOMATIC  
TECHNOLOGY



## HOW IT WORKS

T-Grains™ is an automated system consisting of several machines: a remote-controlled **tilting furnace**, a **heated die**, a **temperature-controlled graining tank** with the Pinch™ double valve and a **bucket conveyor belt called T-Lift™**.

The processing of grains begins in the tilting furnace. The fine metal reaches here its melting point and operators, through a remote control, pour it into a **graining tank** which is located very close by.

The metal is poured through a heated isostatic graphite die which makes sure that metal temperature does not drop below its **melting point** - which is the ideal temperature for the production of high-quality grains - before it comes into contact with the cold water contained in the graining tank.

Once produced, grains settle on the bottom of the tank; however, the tank does not need to be emptied, since grains are discharged by opening the **Pinch™ double valve** and operating the T-Lift™ bucket conveyor belt at the same time.



## TAILORED AUTOMATION FOR THE HIGHEST ACCURACY

**Each Tera Automation machine can be conceived as part of a modular line** which can be combined according to the company's needs and facility space. Each machine can be fitted to existing machines and a full line can be developed over time.

T-Grains™ was designed with the purpose of producing flawless grains intended for ingot casting, and can be combined with other machines, according to each operator's specific needs.

