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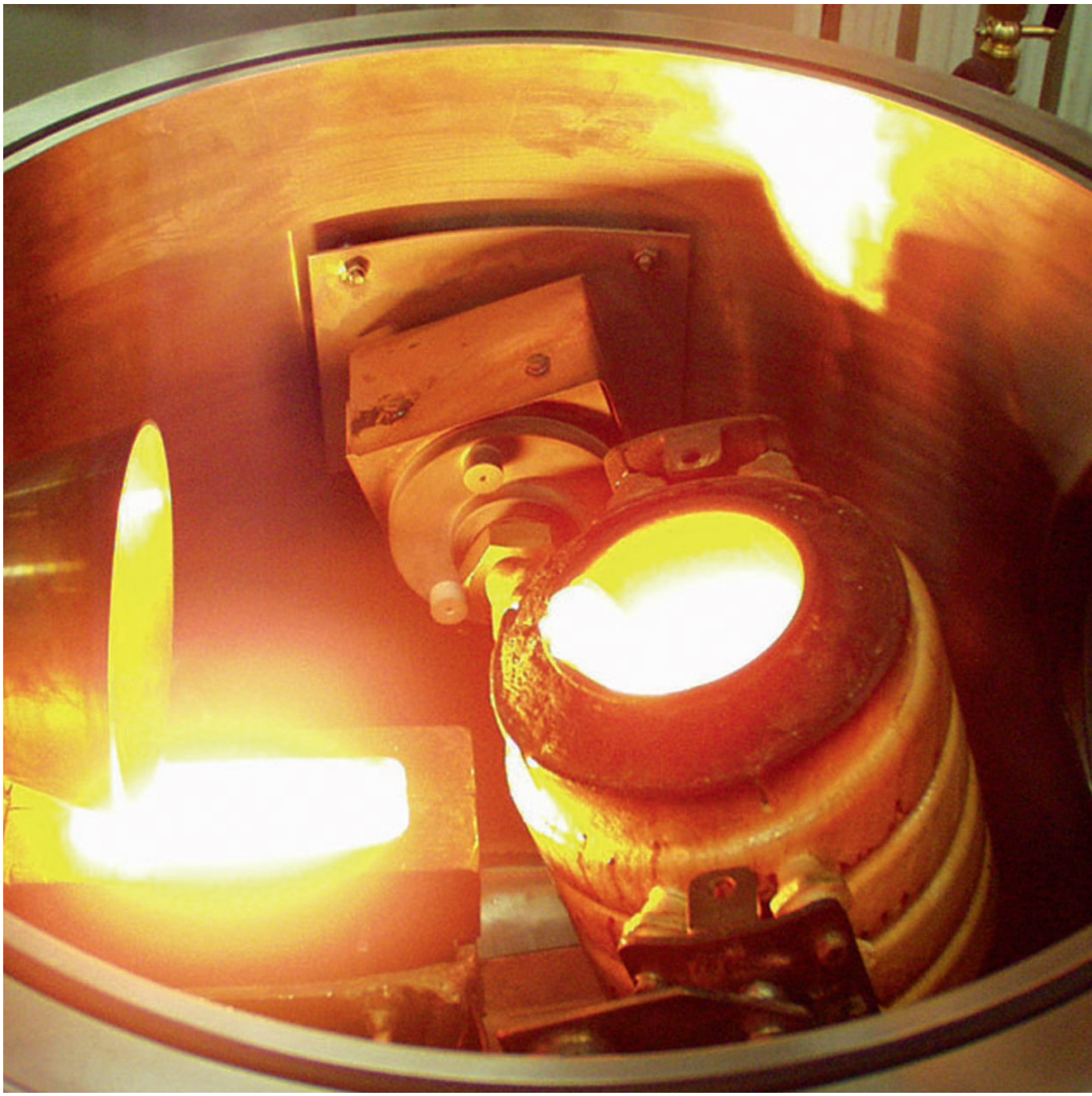


Vacuum Induction Melting and Casting Systems VSG

Vacuum Systems

PVA TePla

VSG

Vacuum Induction Melting and Casting Systems VSG

The VSG systems can be universally employed for melting of metals, alloys or special materials in crucibles made of ceramics or graphite under high vacuum, fine vacuum or different gas atmospheres with subsequent casting into moulds or forms in laboratory or production.

Applications

Melt treatment
- Re-melting and alloying
- Degassing and refining
- Homogenization melting
- Recycling

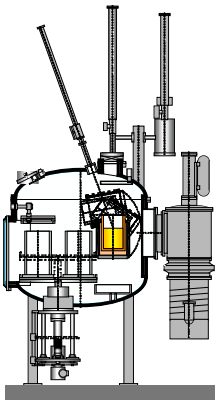
Investment casting
- Precision casting
- Directional solidification
- Single crystal growing

Materials
- Precious metals
- Highly pure, highly alloyed steel
- High temperature resistant materials on Fe-, Ni-, Co- basis
- Non-ferrous metals
- Solar silicone and special materials
- Special- / super-alloys

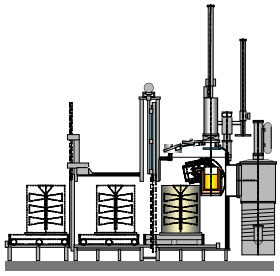
Characteristics

VSG systems are cold-wall furnaces of corrosion-resistant stainless steel with water-cooled double wall vessel. The melting and casting device consists of a tiltable induction coil with coaxial power and coolant feedthrough and the mould table. The material of the applied crucibles is adapted to the melting material. If the melting material is non-reactive with carbon, crucibles made of graphite or clay-graphite can be used. Otherwise ceramic crucibles will be used. Where required crucibles of high-melting metals may also be employed as far as the melting material does not react with the crucible material. In these cases, the crucible acts as a secondary winding for power induction. Power is supplied by static medium frequency converter systems.

VSG systems are available as single or multi chamber systems and consist of the following basic modules: furnace vessel, vacuum pumping unit, power supply and control system, melting and casting equipment, as well as vacuum-lock for melt manipulations. These modules are to be supplemented according to need in different versions combinable and by an extensive selection of accessory mechanisms.



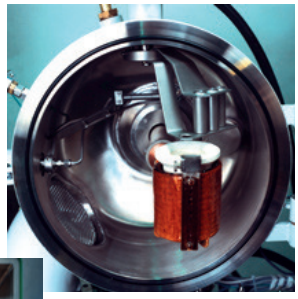
Single chamber system



Multi chamber system

Special characteristics

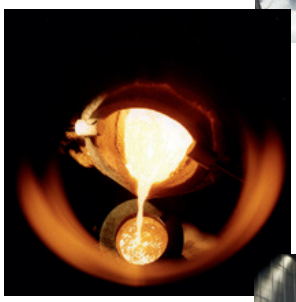
- Well structured systems with a high application flexibility, suitable for modular extension or later supplement / conversion
- Alloying, sampling or other melt manipulations in vacuum operation by vacuum-lock-system
- Suitable for ingot-, mould- or precision-casting
- Tilting of crucible under full power load
- Easy and safe control of the process cycles
- Melting temperatures up to > 2,000 °C
- Automatic control of the melting and casting process (Teach-In-Auto-Pouring)
- Usable volumes 0,1 - 60 l (1 - 500 kg)



Benefits for users

- Highly efficient caused by low loss power supply and functional construction of the system
- Short evacuating times and cycle periods
- Increased process integrity and product quality by auto-pouring control
- Reliability - durability – serviceability

Versions



VSG 010 - VSG 030 - VSG 100 - VSG 300
Standard product line of vacuum-induction melting and casting systems in different sizes and below listed special versions:

VSG – P
Two-chamber precision-casting system for investment and precision casting and quasi-continuous casting

VSG – S
Furnace in special design with side door and / or special applications

VSG – B
For bottom pouring process

VSG – D
For overpressure (10 bar)

VSG – DS
For directional solidification applications

VSG – HP
Inclusive hydraulic press

VSG 40/80
Equipped with multi-crucible system

VSG 002
Multi-purpose laboratory system for research and development and for small production quantity

PVA TePla – The Company

As a vacuum specialist for high-temperature and plasma treatment processes, PVA TePla AG is one of the world's leading plant engineering companies. Its core competencies are in the fields of hard metal sintering and crystal growing as well as the use of plasma systems for surface activation and ultra-fine cleaning.

With its systems and services, PVA TePla enables and supports the innovative manufacturing processes and developments of its customers, primarily in the semiconductor, hard metal, electrical/electronic and optical industries – as well as the energy, photovoltaic and environmental technologies of tomorrow. Corresponding to its main customer markets, PVA TePla is divided into three business divisions, Industrial Systems, Semiconductor Systems and Solar Systems.

Industrial Systems – The Division

The Industrial Systems Division of PVA TePla specializes in the development, construction and marketing of thermal plants and systems for processing top-quality materials at high temperatures.

With almost 50 years experience from more than 1,000 systems supplied worldwide, testimonials from big names in the industry and a diversified range of process plants, the Industrial Systems Division of PVA TePla AG sets technological standards that have seen it grow to become a global market leader in the provision of vacuum sintering plant for hard metals in particular.

Vacuum Systems – The Products

The core competence of PVA TePla is to build resistance and inductively heated systems for vacuum and high temperature applications and heat treatment.

Especially graphite resistance heated vacuum (COV) and pressure (COD) systems for the universal application of dewaxing, vacuum sintering and the subsequent isostatic pressing of metals, carbides, alloys and ceramics are main products of the Industrial Systems Division.

Metallic heated high-vacuum heat treatment furnaces (MOV), designed for typical applications like vacuum brazing, degassing, sintering and cleaning are further successful products.

Inductively heated melting and casting systems (VSG) for melting of metals, alloys and special materials under high-vacuum, fine-vacuum or inert gas atmosphere and heat treatment furnaces (IOV) for sintering and carburising applications round up PVA TePla's product range of vacuum systems.

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