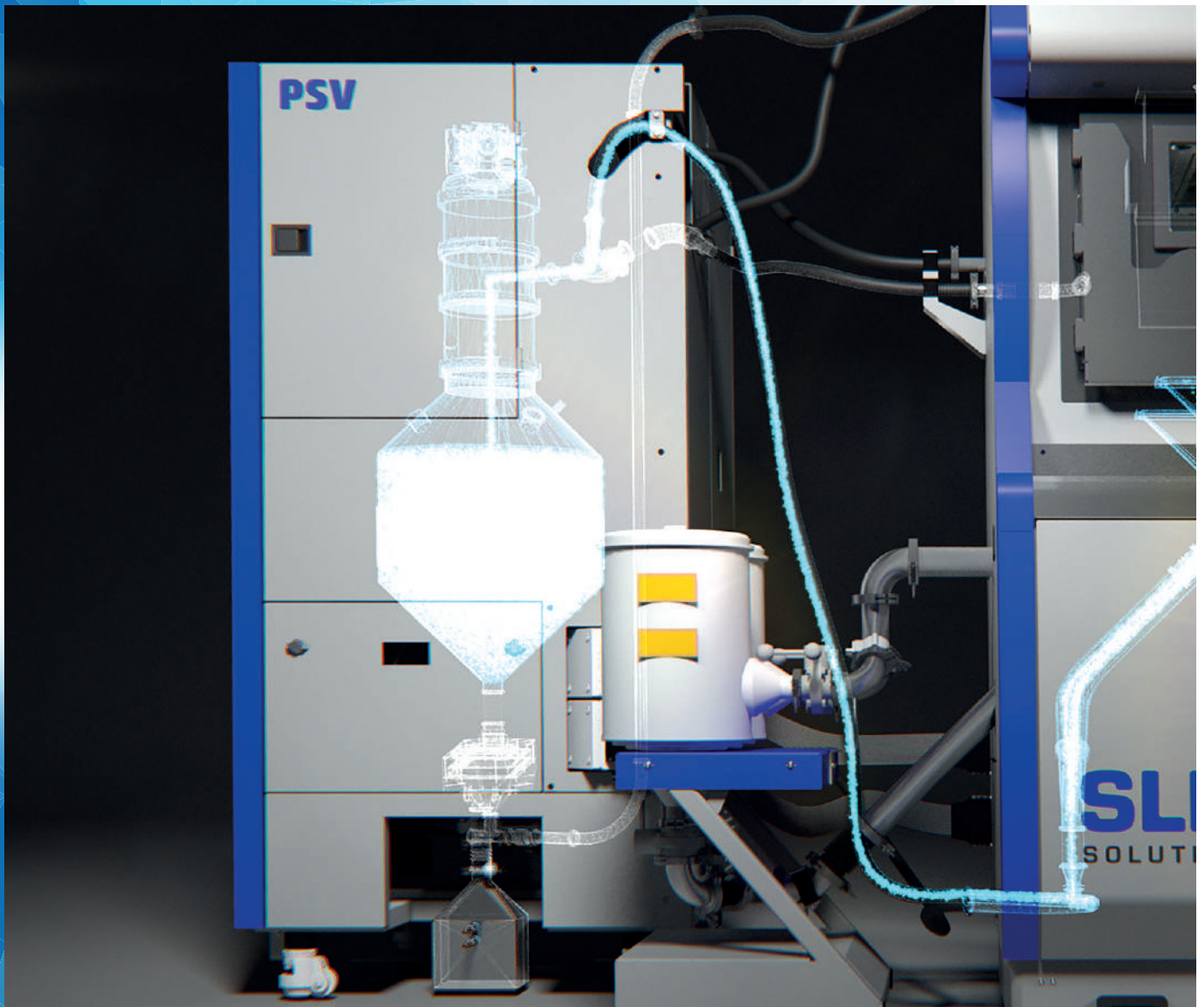


Powder Supply Unit (PSV)



**Fully automated powder supply
using vacuum technology**

Powder Supply Unit (PSV)

The various functions of the **powder supply unit PSV** ensure **secure powder supply without the need to manually refill the powder** during the build process.

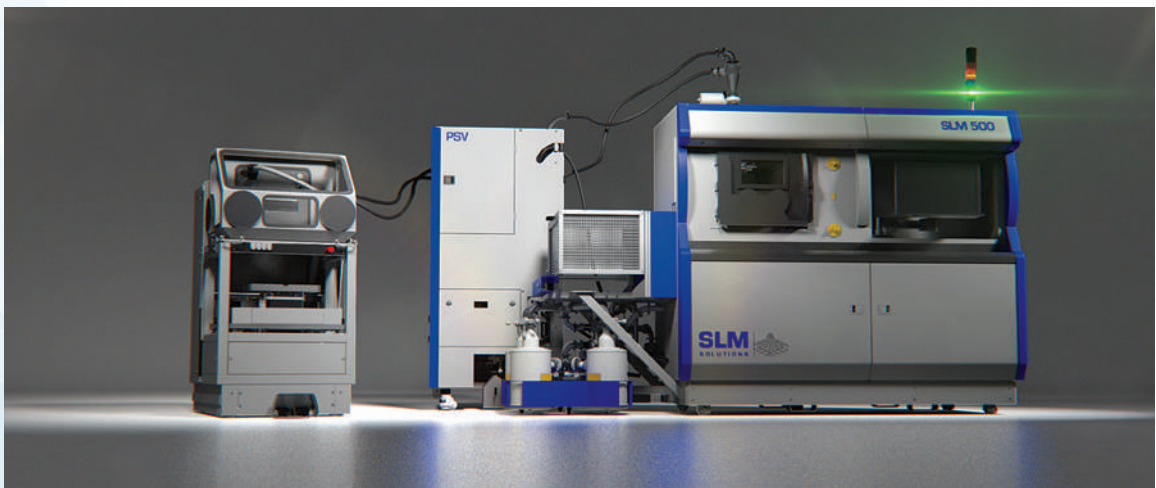
The PSV, equipped with a 90l powder tank, supplies the SLM® machine with freshly-sieved metal powder as required. Excess metal powder from the build process is automatically returned to the PSV powder supply tank. **No manual intervention is required.** After the production process, a manually guided extraction unit returns metal powder that has not been used to the PSV.

The powder is transported by **vacuum technology** with **three conveying routes**. Conveying routes exist to supply and return the powder during the production process, and to recover the powder after the production process. These can be activated as required.

Powder transport, powder sieving and the storage of the powder in the PSV tank take place **in a closed system with constant inert gas atmosphere. Contactless powder handling** ensures maximum safety at work.

In addition to supplying the powder, **the PSV measures the available powder amount** and displays this in the Machine Control Software (MCS). Powder components that cannot be reused are separated out into a special container by the sieving unit.

It is possible to connect a powder container with a DN40 connector to the main tank of the PSV, to supply new metal powder. Alternatively the powder container can be emptied inside the PRS 500 or the process chamber of an SLM®280 via a suction device.



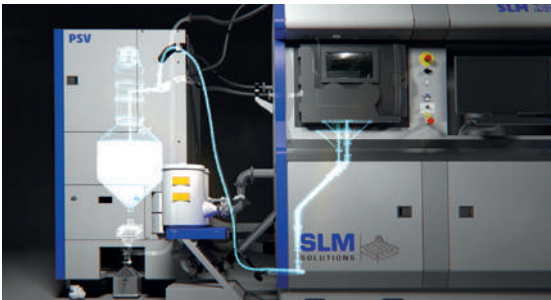
Conveying Routes of PSV

1. Conveying route – Feed



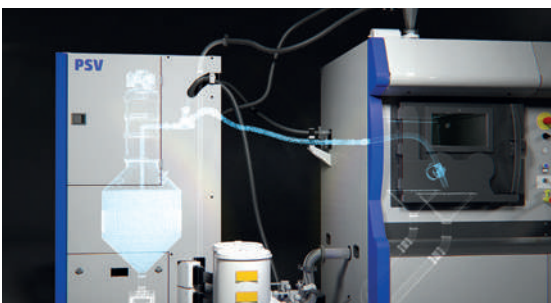
The freshly sieved metal powder is supplied into the SLM[®] machine. An ultrasonic sieve, which is integrated in the PSV, sieves the available powder just before it is fed into the process so that no oversized particles or foreign objects can find their way into the SLM[®] process.

2. Conveying route – Recirculation



The second conveying route returns the excess metal powder from the conversion shafts back to the PSV.

3. Conveying route – Recovery



Powder recovery in the SLM[®]280 2.0

Unpacking of manufactured parts and recovery of the unfused powder is done inside the process chamber of the SLM[®]280 or in the PRS 500 respectively. In the latter case, a new production process can already be started during this step on the SLM[®]500 whereby the powder supply to the SLM[®] machine is then prioritized.



Powder recovery in the PRS 500

About SLM Solutions

The Lübeck-based SLM Solutions Group AG is a leading provider of metal-based additive manufacturing technology. SLM Solutions focuses on the development, assembly and sale of machines and integrated system solutions in the field of selective laser melting.

SLM® technology offers diverse options in the metal-based additive manufacturing of parts, such as a new design and geometric freedom, lightweight construction through the reduction of metal part weight, significant advantages in terms of production speed and the manufacturing of internal undercut parts in low quantities.

Our products are utilized globally by customers from the most varied sectors, particularly in the aerospace, automotive, tooling, energy and healthcare industries, as well as in research and education.

They particularly value the following advantages of our technology partnership:

- Highest **productivity** using patented multi-laser technology
- Highest material density and **part quality** through our innovative gas stream management
- Completely closed **powder management** in an inert gas atmosphere
- Cutting-edge process monitoring using various **quality control modules**
- Multilingual open **software architecture** with customer adaptability
- Ultracompact **modular design**
- Long-term and **confidential customer relationships**
- **A technological leader and pioneer** in metal-based additive manufacturing with decades of market experience

GERMANY ■ AUSTRIA ■ FRANCE ■ ITALY ■ USA ■ SINGAPORE ■ RUSSIA ■ INDIA ■ CHINA

SLM Solutions Group AG | Estlandring 4 | 23560 Lübeck | Germany
Phone +49 451 4060-3000 | Fax +49 451 4060-3250 | www.slm-solutions.com



SLM® and SLM Solutions are registered trademarks by SLM Solutions Group AG, Germany.