



IPCM P plus
Integrated Process Chain Management for EOS Polymer Systems



Integrated Process Chain Management for EOS Polymer Systems: IPCM P plus

IPCM P plus makes easy and efficient Additive Manufacturing a reality, enabling large volumes of polymer material to be handled quickly and safely. Based upon an innovative modular approach, IPCM P plus consists of three elements.



Mixing & Qualification Station (MQS)

For gravimetric dosing, homogenization and conditioning of virgin and used powder. Creation of traceable ready-to-use batches with in-situ sample taking for quality control

- Processes over 700 l of powder material in less than 3 hours
- Can serve three building jobs on an EOSINT P 7, nine jobs on an EOS P 3, or 32 jobs on a FORMIGA P 1



Multibox

For sealed storage, transport and collection of refreshed and used powder

- Capacity 230 l
- Sufficient for a full EOSINT P 7 building job



Docking Station

Provides powder material supply to laser sintering systems via a pneumatic conveying system

- One Docking Station serves one EOSINT P 7 system, one EOS P 3 system, or two FORMIGA P 1 systems

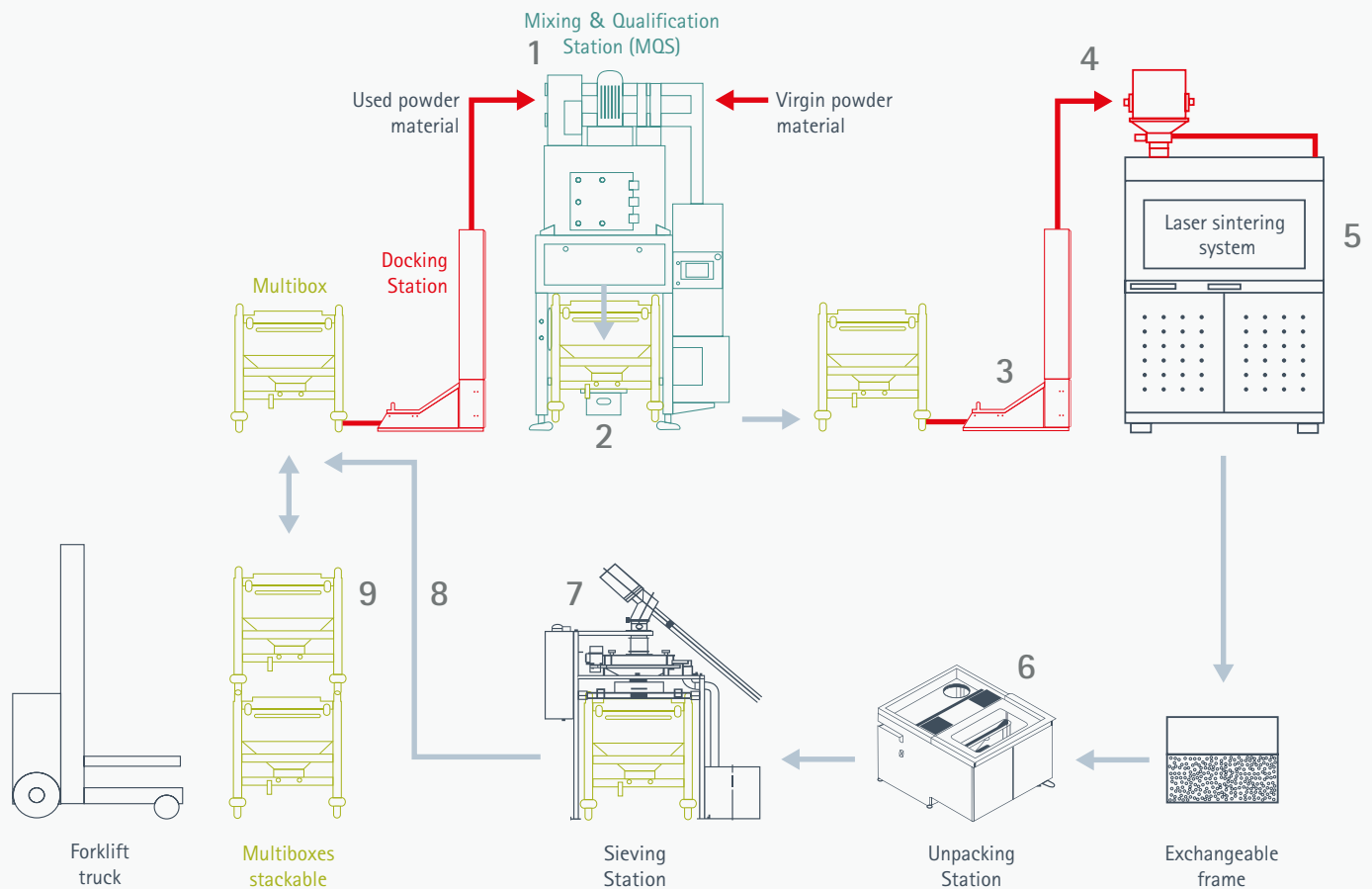
Functionalities provided by IPCM P plus

- Dosing, refreshing, homogenization, and conditioning (humidification) of powder material
- Enables traceability of powder batches
- Transport to and conveying into the laser sintering system
- Sealed, contamination-free storage of the refreshed powder

Benefits of Material Management using IPCM P plus

- **e-Manufacturing:** IPCM P plus ensures constant and repeatable powder quality throughout the entire production process
- **Reduced cost per part:** Precise dosing and in-situ powder qualification make material savings possible
- **Improved quality assurance:** Powder batches can be traced, thus meeting the requirements of quality-focused industries
- **Environmentally friendly:** Humidification of powder in Mixing & Qualification Station through in-line control; no energy-intensive and costly external solutions needed
- **Easy installation and minimum risk of powder contamination:** Powder remains in protected environment at all time
- **Modular approach provides highest capacity and expandability:** Each additional system requires only one extra Docking Station (and one Multibox to maintain ease of handling)

Complete Circle: Safe and Efficient Powder Material Handling with IPCM P plus



- 1 **Mixing and Qualification Station (MQS)** mixes, homogenizes and humidifies used and virgin powder. Mixing is performed by fluidization using a low-speed stirrer
- 2 In a sensor-controlled process, the **MQS** is discharged into a **Multibox** via a bottom valve
- 3 The **Multibox** is transported to a laser sintering system and connected to the system via a **Docking Station**
- 4 An adaptor is used for systems with two dosing reservoirs (EOS P 3 and EOSINT P 7 systems)
- 5 The job is built on an AM system. Via the **Docking Station**, the **Multibox** remains connected to the system during the building process
- 6 Once the job is completed, the exchangeable frame is unpacked in the **Unpacking Station*** and the built parts are removed
- 7 In the **Sieving Station***, remaining material is sieved into a **Multibox**
- 8 The **Multibox** is moved back to the **MQS** and connected via a **Docking Station** for the next batch of refreshed powder
- 9 For efficient storage, a forklift truck* can stack multiple **Multiboxes**

*Not part of IPCM P plus

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