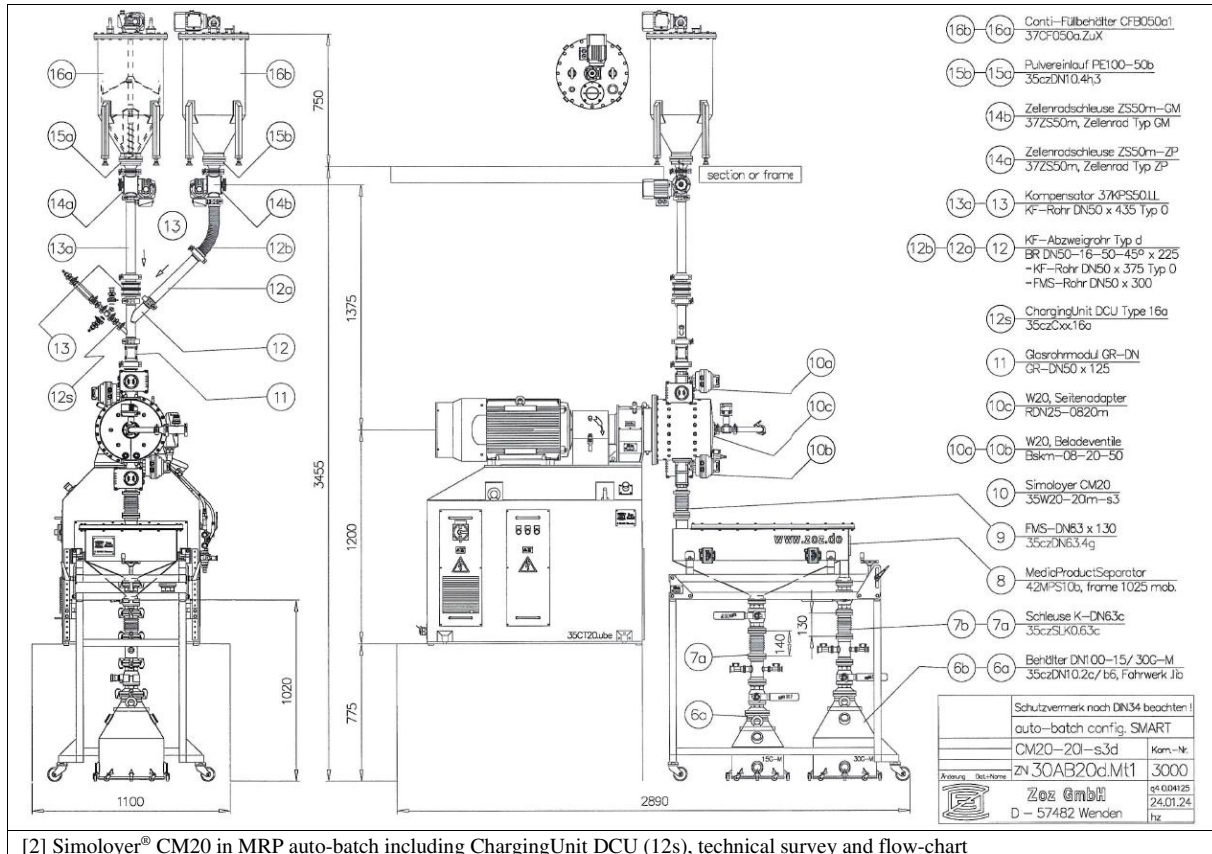


## DispersoidChargingUnit (DCU)

A new device shall allow charging small but precise amounts of powder material into the processing vessel. General requirements are low cost and maintenance, no moving parts and no wear. Charging port shall be located utmost close to processing chamber, given support such as gravity shall be utilized.

The DispersoidChargingUnit (12s) is adapted at CalmingPipe (12) as a part of the airlock for charging right at the vessel. DCU is assembled in 45° angle, thus gravity supports in transfer direction. Entry-port is right where starting powder and GM from ChargingContainer (16b) and (16a) res. come straight down inside (12). Uptake of small fraction by two large fractions is suggested.



[2] Simoloyer® CM20 in MRP auto-batch including ChargingUnit DCU (12s), technical survey and flow-chart

DCU is equipped with its independent airlock (21) with vacuum- and inert-ports assembled under 70° thus here gravity supports solids-flow in desired direction hindering the opposite/exhaust. The Dispersoid (here Yttrium) comes as the precise portion in the sealed glass-tube (22) to be connected at airlock (21).

(a) after clearing atmosphere and opening transfer valves (20a+c), Dispersoid flows into the vessel supported by gravity;

(b) simultaneously to (a), GM and starting powder from ChargingContainer (16b+16a) may flow in supporting (a);

(c) optionally, vessel and pipe-system can be set under preceding vacuum, supporting Dispersoid-flow by depression mode. Evacuation may be pulled via CFB (16b+16a), side adapter (10c), MPR-unit (8) or via airlocks (7a+b) whatever evacuable volume is required for depression;

(d) once (a-c) would not provide appropriate result, which may be visually controlled at glass-tube (22a) and glass-tube module (11), ventilation valve (23a) may be connected to an inert gas source and subsequently opened for expansion and/or used for pulsed pressure into the comparably multiple times larger vessel/pipe-volume.

The Dispersoid, here Yttrium, is precisely loaded into the vessel after an estimated handling time below 3min at discontinuous operation during auto-batch processing.