



[2] DCU ChargingUnit for SMART auto-batch configuration, technical survey and flow-chart

| pos. | unit-definition                         | what for ?  |
|------|---|---|
| 12x  | DispersoidChargingUnit                  | loading small fraction, e.g. dispersoid ODS/NFA/SMART       |
| 20a  | KF-Adapter DN16-G38-DN16                | airlock transfer-valve intra locking CalmingPipe (12)       |
| 20b  | ditto                                   | airlock evacuation valve extra locking                      |
| 20c  | ditto                                   | closing (22a)   |
| 21   | DN16a-2-SF airlock                      | transfer small fraction under controlled atmosphere         |
| 22a  | Glass-tube GR-DN16 x 150, 30 ml approx. | carry precise small powder fraction                         |
| 22b  | DN16 SampleUnit, 17 ml approx.          | alternative for smaller small fraction to be loaded         |
| 22x  | Glass-tube GR-DN25 x 150, 68 ml approx. | alternative for larger small fraction to be loaded          |
| 23a  | DN16-G38-NW09                           | airlock gas flow-in valve                                   |
| 23b  | ditto                                   | closing (22a), depr. gas supply and/or pulse pressure valve |
| 50   | clamp set DN16-IZR-Al (ISO)             | seals all components  |

[T1] DCU16a at Simoloyer® CM20 in MRP auto-batch, main component list

Glass-tubes (22a) or (22x) are utilized as Dispersoid charging container. During further realization, the closing valves 23b + 23c may be directly connected via inner-thread in order to saving 2x clamping (50) and total DCU-lengths at now 400mm.

Such connector design is realized at the SampleUnit (22b) for smaller Dispersoid volume up to 17ml. For larger volume up to 68 ml, DCU-scale can be altered from DN16 to DN20 (ISO). Optionally, Glass-tube (22a) can be extended in length from now 150mm up to 200mm resulting in about 40ml Dispersoid-capacity.

- [1] HKP in the Simoloyer - Media Reload Processing (MRP) eds. 2023-08-31, [www.zoz.de](http://www.zoz.de)
- [2] A. Litnovsky, J. Chen, M. Bram, J. Gonzalez, H. Zoz, H.U. Benz, J. Huber, G. Pintsuk, J.W. Coenen, C. Linsmeier, Forschungszentrum Jülich, RWTH Aachen University, Zoz Group, Dr. Fritsch GmbH, University of Wisconsin Madison, SMART materials for DEMO: towards industrial production, Oral P3C5@ISFNT15, International Symposium on Fusion Nuclear Technology, 12.09.2023, Las Palmas, Spain, , proceedings/book of abstracts
- [3] H. Zoz et al, nanostructures beyond ODS/NFA + SMART, hydrogen solid state D/T traps and UHPC for nuclear shielding@ Institute of Plasma Physics, Hefei, China, 14.11.2023, [www.zoz.de](http://www.zoz.de)