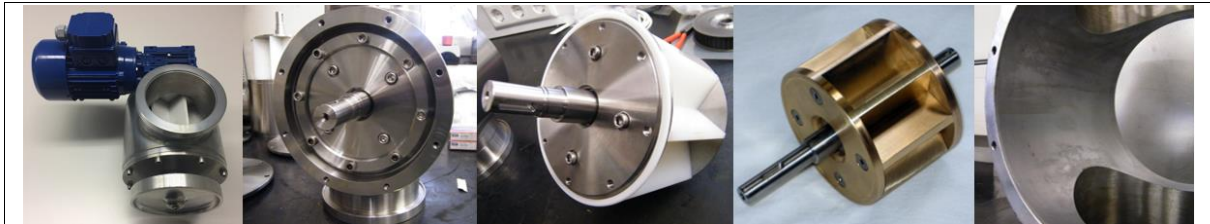


Rotary Vane Feeder ZS**-GM*

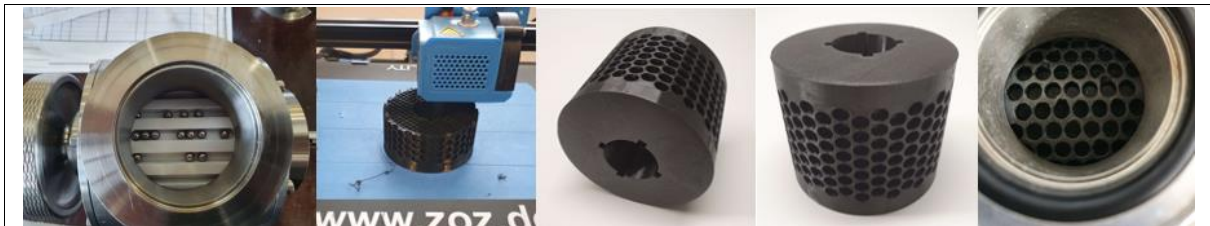
precise auto-batch feeding of grinding media at Media Reload Processing

Media Reload Processing in auto-batch requires precise feeding not only of starting powder material but also of grinding media (GM) for each processing run. Rotary Vane Feeder ZS do represent to outside vacuum-tight cycle locks that to some limited extent can be used for packaging/portioning of processing components. Common star-feeders cannot transfer GM, resulting frequent blocking does harm equipment and process. Thus, a new feed-wheel strategy had to be developed.



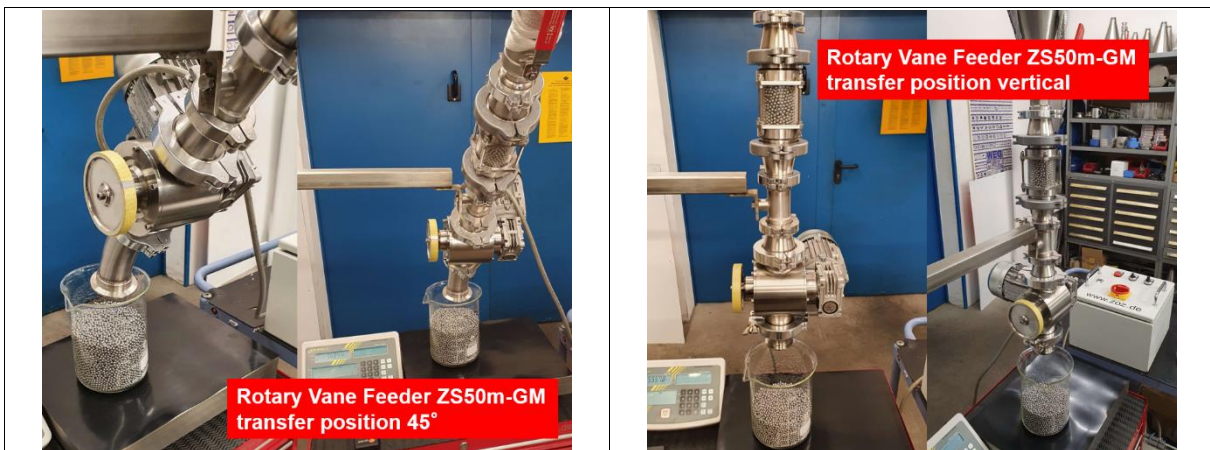
[4] star-feeders 37ZS50.ZR1 utilized in Zoz ZS Rotary Vane Feeders, adjusted mainly in material, seals & surface, in geometry only slightly

Significant geometric changes have been applied, particularly feed-wheels that have no star-shape anymore. E. g. the zebra-type feed-wheel performed better than the star-type but not at all acceptable as a commercial solution. Good results are achieved with the single-trap surface (STS) wheel that was made in multiple variants using rapid prototyping / 3D-printing PETG filament.



[5] feed-wheels, zebra-type (left) and 3D-printed STS-type, installed at ZS50m (on right)

The working-volume of ZS50m with common star-feeder 37ZS50.ZR1 is 96,99cm³, feed-wheel STS-50-GM06 at full load carries 245 steel-balls D4,762mm each 0,44g weight and 56,5414 mm³ volume. In case of STS-feeder, the working volume should describe the “transfer-volume”, which equals to the volume of the 245 steel-balls, thus 13,85 cm³ at $\Sigma 107,8g$. In result, the star-feeder transfer rate is 7x (7,003) higher compared to the STS-wheel.



[6a] test configuration 45°, ZS50m-G06, feed-wheel STS-01

[6b] test configuration 90°, ZS50m-G06, feed-wheel STS-02

A rotary vane feeder ZS50m is fixed in adjustable transfer angel position [6a/b], grinding media is fed from a KF-Container DN40-G1-31 through KFA-Adapter DN50-DN40x45 and a Transparent Pipe Module GR-DN50x125. At 45°-test [6a], additionally a pipe-bend RBA-DN50-22.5° was installed at the ZSm flow-out port. Grinding media was collected in a 2.000ml glass-bin (Schott) continuously weighted on a high precision balance (Kern KFS-T).