

## Rotary Vane Feeder ZS50m-GM06 pilot + next gen. filament damage at prototype, predicted next gen. commercial performance

After geometric performance of STS-type feed wheels is confirmed, commercial product availability can now be predicted. The next generation STS-wheels will be made by stainless steel which should solve the given wear/damage problems of the weak filament-structure. Following the common star feeder experience where each of the star heads represents a tube-stripper, STS-wheel (ZS50-scale) in V2A/V4A will be equipped with 6 tube-strippers made from PTFE. These provide pressure-shock resistance as well as wheel-in-tube wear, transfer tube/case will be chromium-plated which also represents an option at decades experience.

ZS50m-GM, wear of vane feeder drum (prototype PETG filament 1.7)					
	position	runs	total grinding media	total time	wear (locks)
(a)	45°	70	50.382g	23min20s	48/245 (19,6%)
(b)	90°	70	55.112g	23min20s	09/245 (3,7%)
(c)	45°+90°	140	105.494g (105,5kg)	46min40s	57/245 (23,3%)

**T4, next gen. VFD to be printed in 1.4301/1.4404 by KAMI/Seoul/Korea**

[8] components & test-wheels, (b) STS-wheel after all test-runs in 90°-position, (a) STS-wheel from 45°-position testing correspondingly

As for wear res. damage during test-runs with the two STS-wheels, the wheel (a) after 90°-position testing showed 48 damaged compartments (locks) res. 48 steel-balls remained in the compartments. Much less damage is observed at wheel [8b], where 9 damaged compartments/steel-balls were counted. Each wheel carries 245 compartments, thus for [8a] a damage rate of 19,6% and for [8b] a damage rate of 3,7% is recognized. The insofar poor stability of [8a] may explain mismatches M01 and M02 at 45°-testing. Mismatches M03 and M04 in 90°-testing could not be explained by the 9 unavailable compartments since M03/04 did NOT appear at the end of the test-run. Again, geometric performance can be stated as proven/given.

Based on the available data on both, the present pilot-test STS as well as previous testing/experience with all ZSm-units, minima performance can be predicted. Rotary vane feeders ZS\*\*m-GM\* will soon be appropriate to providing precise packaging/portioning of grinding media at Simoloyer® auto-batch operation utilizing MediaReloadProcessing:

unit-size ZS	ZS25	ZS40m-GM	ZS50m-GM	ZS63m-GM	ZS100m-GM
access surface E/A Δ-%	24	66,6	100	165,3	416,4
type GM est. minima	0,7 kg/min	2 kg/min	3kg/min	5kg/min	12,5 kg/min
for Simoloyer®	CM01 (2kg)	CM08 (8kg)	CM20 (20kg)	CM20 (20kg)	CM100 (100kg)
charging time (standard GU-size)	(3min) too small	4min	6-7min	4min	8min

T5, prediction of automatic GM loading time for Simoloyer® CM08 - CM100. ZS25 is too small, CM01 may be charged with ZS40 in 1min. For CM400 & CM900, ZS130 and ZS160 (KF-DN130/DN160) will be introduced.

Next results to be published upon availability.  
References to follow, once this project is done.

Zoz Group, 31.08.2023