



**Operation and Maintenance Manual
for
Automatic FreeGlide® Sampler**

Model: FG A



Clean Before Use

Thoroughly clean all product contact parts of the sampler before it is used for the first time. We recommend that you use the same cleaning methods that are used for other items of stainless steel and Silicone.

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Section One

1.0 Contract Details

Order No.

Supplier:

Project No:

Section Two

2.0 Machine Description

The FreeGlide® Sampler is a sampling device designed for the collection of powder samples from a vertical downpipe.

The sampler extends a small cup into the flow of the falling product, then retracts and inverts the cup, thus depositing the sample into whatever sample collection system the operator is using. The sampler is designed so that it can be easily stripped down.

The actuation of the sampler is pneumatic, and the dwell times (with the cup in the flow and the regularity of the sample collection) are set by the customer. These are to be set during commissioning.

The FreeGlide requires a continuous supply of air at 5 to 8 barg (6 bar recommended). If a continuous air supply can not be maintained then a small reservoir may be required.

2.1 Capacity / Specification:

Nominal Cup capacity	50 mL	
Actuation type:	Cup movement forward and back	- Pneumatic
Automatic sampler.	Cup inversion	- Pneumatic
Polymers:	Diaphragm	Silicone
	Closing Plug	Silicone
	5" Front Seal	Silicone
Diameter of Front Boss:		
Sample collection system:	Optional Extra – not required	
Cleaning Nozzles	Optional Extra – not required	

Section Three

3.0 Safety Notes

If a hazardous environment exists within the product chute, it is important that any potential explosion risk is removed prior to the strip down of the sampler. Sampling Systems recommend that this is covered in customer SOP's and operator training.

It is incumbent upon the owner of the machine to ensure that any personnel operating it are fully trained in its use and understand the function of each control and the various interlocks and safety features fitted to it. Similarly, it is the responsibility of the owner to ensure any maintenance staff carrying out repairs to the machine are fully aware of its functions and use and are qualified to under take the repairs required.

Sampling Systems Ltd. will not take any responsibility for any failures or mishaps if the machine is not used for its intended purpose.

Maintenance

The equipment should be regularly checked to ensure that it is in a safe state to use. Any defects found during the visual inspection or noticed by an operator should be checked and rectified by a qualified person before the machine is used again.

We recommend the machine should be placed on a planned maintenance schedule with an annual check by an expert, in addition to the regular maintenance and a log kept of work carried out.

Electrical Safety

No work is to be carried out on the machine other than by a qualified person who is familiar with this type of equipment.

The equipment is to be wired by a competent electrician.

This device may only be connected to equipment that is suitably designed for use in the environment in which it is to be used.

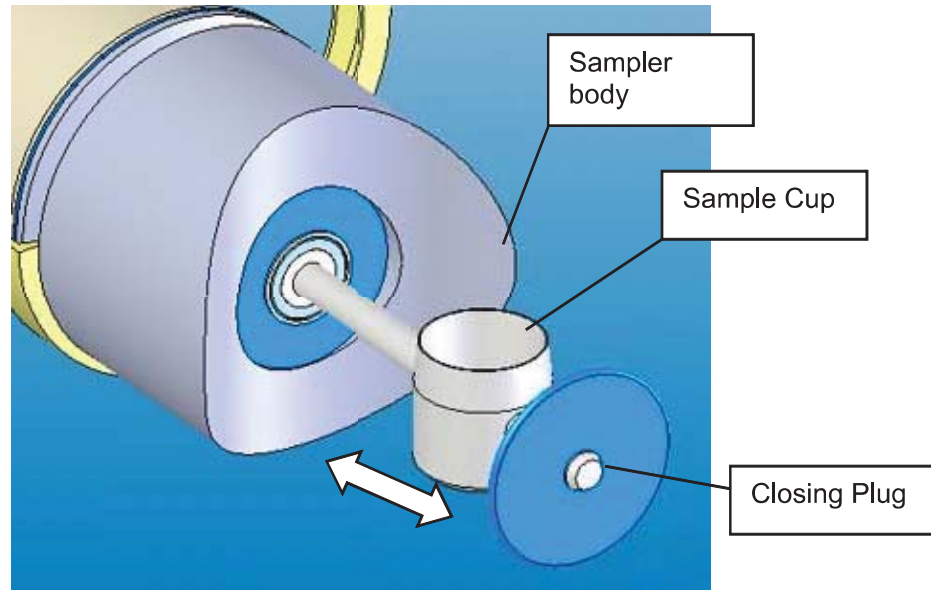
Earthing (Grounding)

Ensure that the FreeGlide is earthed through the Front Boss to the surrounding equipment. Ensure that there is an earthing path through the sampler (see section 5.3)

Section Four – Installation & Operating Instructions

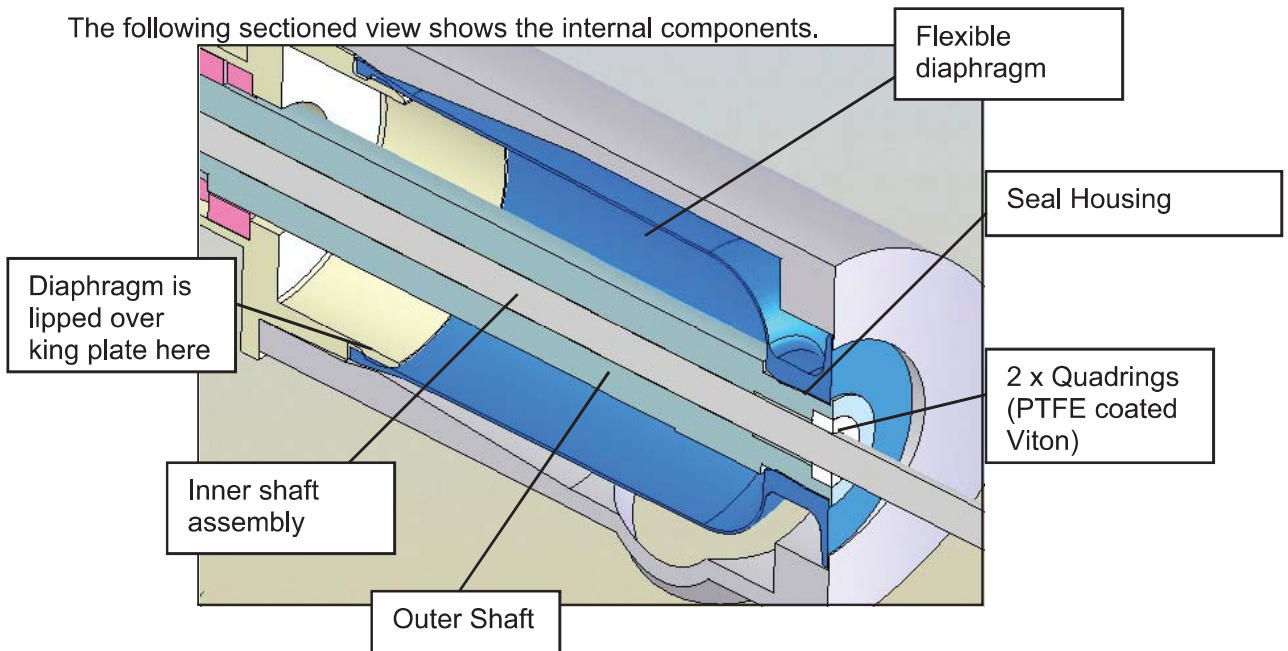
4.1 Overview of sampler

The various components of the FreeGlide® sampler are shown below:



(Note – Chute removed for clarity).

The following sectioned view shows the internal components.



4.2 Installation

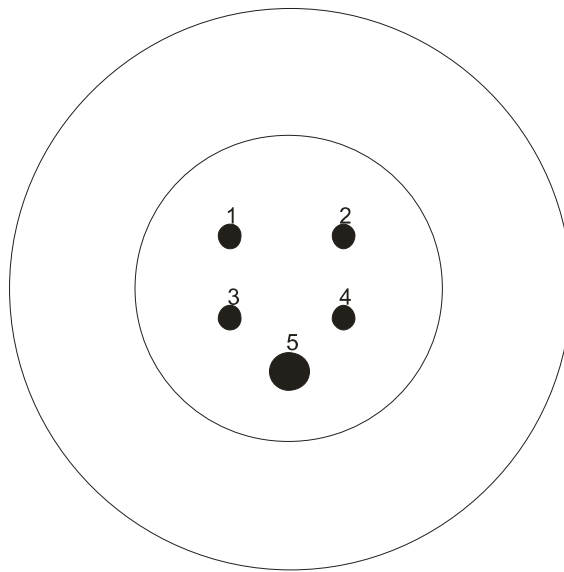
a. Fix Flange to Downpipe

Cut a 120mm diameter hole in the pipe where the sampler is to be installed weld the Front Boss in place

The curved face of the Front Boss should be level with interior wall of the pipe.

b. Service Connections

The FreeGlide® has the following connections at the rear of the device.



1. Air Connection 4mm – Rotate Cup Down
2. Air Connection 4mm – Rotate Cup Up
3. Air Connection 4mm – Retract Cup
4. Air Connection 4mm – Extend Cup
5. Multipin Plug (8 pin) – see drawing SS400-300

c. Incoming Services

Compressed Air – recommended pressure 5 to 8 barg (6 barg recommended).

Electrical – 24v DC

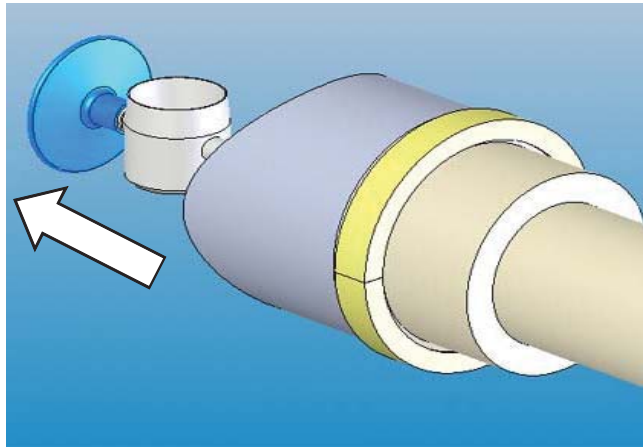
4.3 Sampling Operation

The operator extends and retracts the sample cup into and out-of the product chute using the air supply (the air supply for this is organised by others). The sampler cup should be slid all the way in or out to the limit of travel, thus ensuring that the cup is either in the ideal position in the product chute, or back in the correct position within the sampler housing for sample recovery.

Once the cup is in the recovery position, the cup is then inverted so that the powder from the cup is transferred into the chute.

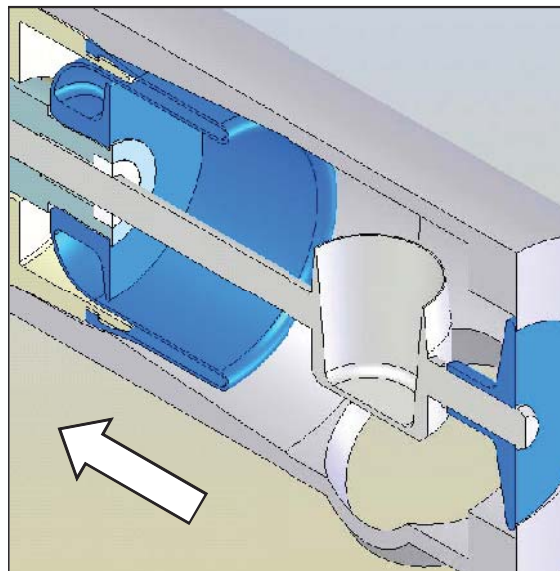
The sequence will be as follows:

1. Cup is extended into the product chute, and is left there momentarily to fill with powder.

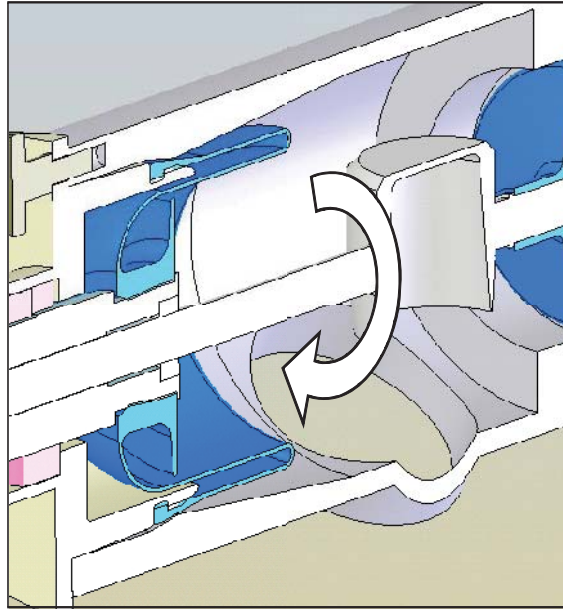


(Note – Chute removed for clarity).

2. Cup is retracted to position within sampler body.

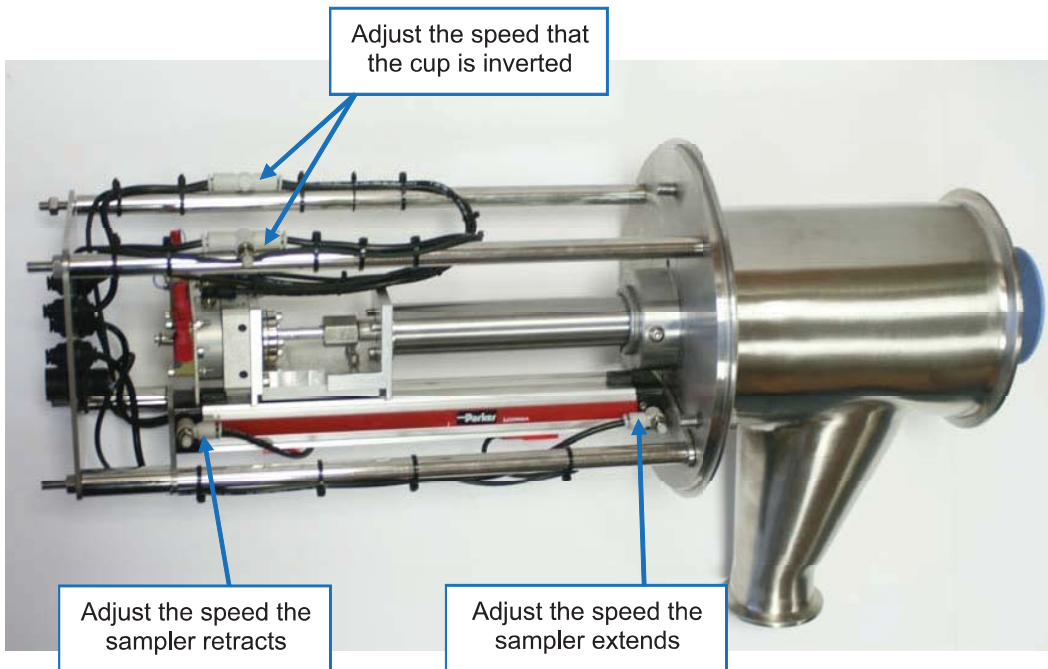


- Cup is inverted, emptying sample down collection chute.



4.4 Speed Adjustment

The speed at which the sampler extends and retracts (linear speed) and the speed the cup inverts (rotational speed) can be easily adjusted.



4.4 Complete strip down of sampler.

4.4.1 How to Change the Diaphragm

**Warning – this is a two person job –
the FreeGlide weighs about 15kg**

Tools Required:

- Hex (Allen) Key 6mm
 - Spanners 10mm & 16mm
 - Pliers
 - Screw Driver with wide flat blade
1. Disconnect all pneumatic and electrical connections to the rear of the sampler.
 2. Undo the 5" hand tightened clamp at the front of the sampler. A second person will be required to support the sampler once the clamp has been removed.

Place the sampler on a suitable work bench.



3. Use the 10mm spanner to undo the four M6 Dome Nuts at the end rear of the sampler. Slide off of the rear plate and the large cylindrical cover tube.

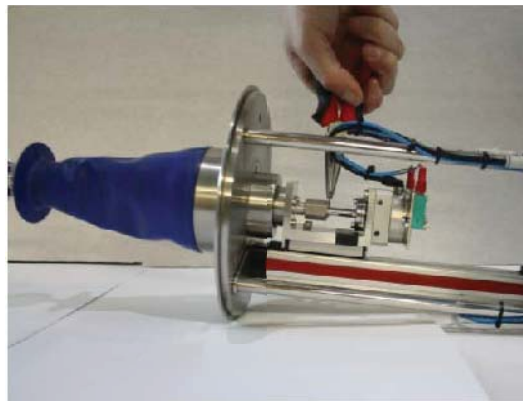


4. Use the 6mm Hex Key to remove the three M8 cap screws at the rear of the Tee Piece.

Remove the Tee Piece – take care that the cup does not scratch the internal surface of the Tee Piece.

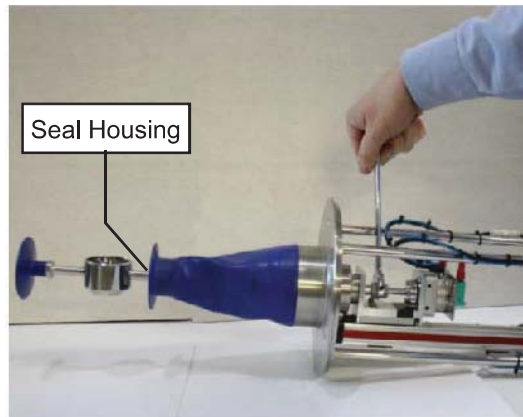


5. Remove the split pin from the actuator coupling.



6. Use the 16mm spanner to undo the retaining nut then slide out the Inner Shaft from the front of the sampler.

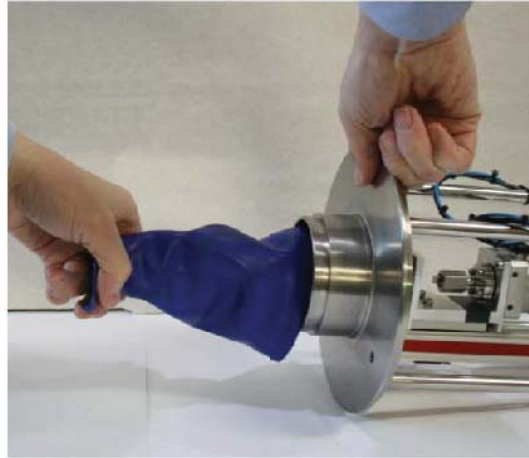
Take care not to damage the two quadrings in the Seal Housing.



7. Un-lip the large end of the rubber diaphragm from the king plate.



8. Unscrew the Diaphragm and Seal Housing from the Outer Shaft.



9. Separate the Seal Housing and the Diaphragm



Re-assembly

- 10 - Re-assembly is the reverse of removal. Note: great care should be taken when inserting the inner shaft into the Seal Housing so as not to damage the Quadrings.

Section Five

5.0 Maintenance

5.1 Recommended maintenance

In order to keep the sampler in good working order, regular maintenance is required and this should be recorded and kept as a record.

All maintenance personnel who carry out the maintenance on the sampler should be fully qualified.

Recommended weekly maintenance

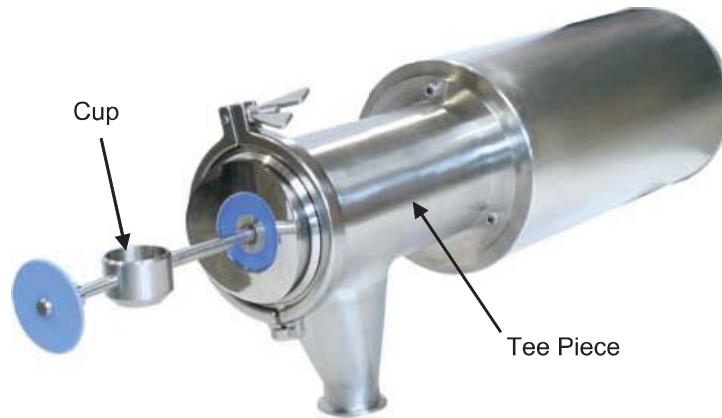
- Visually inspect the Diaphragm* for wear.
- Visually inspect the Closing Plug* and PTFE collar for wear.
- Visually inspect the Quadrings* for wear.
- Confirm that the sampler is able to extend to retract freely.
- Confirm that the sampler cup is able to rotate freely.
- Check the wiring and pneumatic tubes are positioned so that they will not obstruct the movement within the sampler
- Confirm that there is an earthing path through the device, from the sampling cup to the Tee Piece (see Section 5.3)
- Confirm that there is an earthing path from the sampler to the equipment to which is clamped (see Section 5.4)

* The diaphragm, closing plug and quadrings should be looked upon as consumable parts and so should be replaced at the first signs of wear. See Section 6 for the Spares List.

5.2 Lubrication schedule

There are no components on this sampler assembly which require lubrication.

5.3 Earthing (Grounding) Check – Inside Sampler

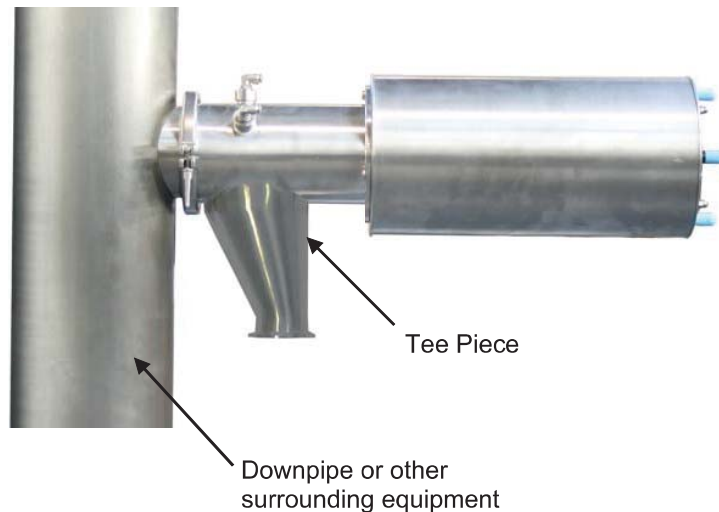


Ensure that the resistance between the cup and the Tee Piece is less than 1 Ohm.

The FreeGlide is permanently earthed through its bearings, there are no adjustments that can be made by the customer.

5.4 Earthing (Grounding) Check – to surrounding equipment

Ensure that the resistance between the Tee Piece and the Downpipe (i.e. Surrounding equipment) is less than 1 Ohm.



Section Six

6.0 Recommended Spares

Sampling Systems recommend that the following spares are kept on site in order to prevent any production stoppages.

Ref	Item	Part Number	No. on sampler	Recommended quantity for spares	
6.1	Diaphragm:	Silicone	SS900-341	1	2
		EPDM	SS900-343	0	
		Viton	SS900-344	0	
6.2	Closing Plug:	Silicone	SS900-269	1	2
		EPDM	SS900-265	0	
		Viton	SS900-267	0	
6.3	5" Gasket:	Silicone	SS900-206-50	1	2
		EPDM	SS900-291	0	
		Viton	SS900-290	0	
6.4	Filter ¼"	SS900-209	4	8	
6.5	Quadrings	SS900-334	2	4	
6.6	PTFE Collar – fits under Closing Plug	SS400-306	1	2	