

RT-FOD680样件验证准备与记录指南

整理样件、工装、检测条件、对照与结果记录的准备项，附空白记录表；是方法指南，不是实测报告。

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先约定任务，再记录结果

本指南用于客户与重力东科GRAVATEK共同准备RT-FOD680样件评估，提供方法与空白记录字段。它不是实测报告，不是通用检出率保证，也不是客户验收结论。

先确认封装腔体与可活动颗粒风险。表面外观、液体颗粒粒径分布和螺丝扭矩分别是不同的检测目标，不能直接套用同一验收指标。

需要准备哪些信息

准备项	双方需确认的内容
对象与目标	样件结构、腔体、检测工序，以及需要识别的异常状态。
正常与已知异常样件	样件编号，以及正常/异常真值的确认依据；独立样件与重复检测分开。
颗粒状态	已知材质、质量、形状、活动性和位置；未知项明确标待确认。
装夹条件	工装、方向、接触点、突出结构、约束，以及台面以上总重量。
设备配置	交付硬件、传感器布置、软件版本及报告格式；项目细节保存在受控记录。
数据与上下料	产品编号、MES协议/字段、上料下料及保密要求。

公开范围与使用条件

项目	公开说明与条件
样件与工装适用性	按被测件、夹具及活动空间评估；样件外廓、高度、装夹方式与颗粒活动空间需结合实际被测件和工装评估。
台面以上允许总重量	50 kg；包括试件、夹具、附件、传感器安装件等台面以上部件的合计重量，不是试件净载荷。
最小可检金属颗粒质量	金属颗粒 100 mg；检出表现与样件腔体、颗粒活动状态及装夹条件有关，具体通过样件验证确认。

项目前的四步准备

设备操作流程另行组织：上料装夹、编号关联、动作及互锁确认、按约定激励、采集分析、保存/传输记录、取件与异常复核。人工装夹和上下料不能直接改写成整线无人化。

- 明确样件、异常风险与判定目标。
- 确认工装、台面以上总重量及检测条件。
- 用正常与已知异常样件验证并记录条件。
- 复核响应及记录，确认配置、验收方法与资料范围。

空白验证记录

记录字段	按实际评估填写
项目/日期/记录编号	_____
样件编号/正常异常真值	_____
腔体/颗粒状态/检测方向	_____
工装/装夹/台面以上总重量	_____
硬件/软件/条件记录索引	_____
独立样件数量/重复次数	_____
判定规则/响应/复核结果	_____
局限/复核人/资料公开范围	_____

结果分母与公开范围单独确认

若记录检出、漏检或误报，需记录约定判定规则与真实TP/FN/FP/TN，区分独立样件数和重复检测次数。未测试前保持结果栏空白，不预填零误报、零漏检或全部检出。

厂家规格不是样件结果，空白模板不是报告。客户项目即使匿名或脱敏，也需确认公开许可；只有真实、复核并获准的结果，才能在相应条件和范围内发布。

- 公开产品摘要：gravatek.com.cn
- 产品与样件咨询：gravatek.com.cn

GRAVATEK / SPECIMEN VALIDATION

RT-FOD680 specimen preparation and validation record guide

A practical preparation checklist and blank record structure for specimen evaluation. It is not a completed test report or a detection-rate guarantee.

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Agree the task before recording a result

This guide helps a customer and GRAVATEK prepare an RT-FOD680 specimen evaluation. It is a method guide with blank record fields, not a completed test report, universal detection-rate claim or customer acceptance result.

Evaluate the actual sealed cavity and movable particle risk. A surface appearance task, liquid-particle size distribution or screw-torque measurement is a different inspection objective.

What to prepare

Preparation item	Information to agree
Object and objective	Specimen structure, cavity, inspection stage and the abnormal condition to be detected.
Normal and known-abnormal specimens	Specimen IDs and the evidence used to establish normal/abnormal truth. Keep independent specimens separate from repeated tests.
Particle condition	Material, mass, shape, mobility and location information that is actually known; mark unknown fields as unconfirmed.
Mounting	Fixture, mounting direction, contacts, protrusions, restraint and above-table total mass.
Configuration	Delivered hardware, sensor arrangement, software version and record/report format; record project details in controlled records.
Data and handling	Product identifiers, MES protocols/fields, loading/unloading and confidentiality requirements.

Public scope and conditions

Item	Public information and qualification
Specimen and fixture suitability	Assess the specimen, fixture and available movement clearance; Assess the actual specimen and fixture for outer dimensions, height, mounting and particle movement clearance.
Maximum permitted mass above the tabletop	50 kg; The combined mass includes the specimen, fixture, accessories and sensor mounting parts above the tabletop; it is not the specimen net load.

Item	Public information and qualification
Minimum detectable metal particle mass	Metal particles 100 mg; Detection performance depends on the specimen cavity, particle mobility and clamping conditions, and must be confirmed through specimen validation.

Four preparation steps

The operation sequence is distinct: load and mount, associate the product ID, confirm actions and interlocks, apply the agreed excitation, acquire/analyze responses, save/transfer records, and unload with abnormal-result review. Mounting and handling are not automatically an unattended production line.

- Define the specimen, risk and decision objective.
- Confirm fixtures, total mass above the table and test conditions.
- Test normal and known-abnormal specimens under recorded conditions.
- Review responses and records, then agree the configuration and acceptance method.

Blank validation record

Record field	To be completed for the actual evaluation
Project / date / record ID	_____
Specimen ID / normal-abnormal truth	_____
Cavity / particle condition / orientation	_____
Fixture / mounting / above-table total mass	_____
Hardware / software / conditions reference	_____
Independent specimens / repetitions	_____
Decision rule / response / review result	_____
Limitations / reviewer / data publication scope	_____

Keep the denominator and permission visible

If reporting detection, missed detections or false alarms, record the agreed decision rule and actual TP/FN/FP/TN, with the number of independent specimens and repeat tests separately. Leave result fields blank until testing; do not prefill zero errors or full detection.

A manufacturer specification is not a specimen result. A blank template is not a report. An anonymized project still needs permission for its intended public use. Only publish real, reviewed results within the permitted scope.

- Public product summary: gravatek.com.cn
- Product and specimen enquiries: gravatek.com.cn