Generator FAT witness checklist

出厂验收试验见证检查表 · Diesel generating set · November 2026

SINOSPECT

Sample: the witnessing engineer completes it from the order's datasheet and the approved FAT programme · 示例：按订单数据表和认可的出厂试验大纲填写

Factory 工厂:

Factory contact 工厂联系人:

Day 1 date 第一天日期:

Day 2 date 第二天日期:

Engineer 工程师:

Standard 标准: ISO 8528 (GB/T 2820) and the purchase specification

How to fill in 填写说明: The factory runs the set and the load bank; the witnessing engineer checks the set-up and the instruments, and records the readings against the contract values. Mark each item PASS, FAIL or NA; write the reading and the photo number. Photograph every rating plate, the engine serial number stamped on the block, the load bank display at each step, the controller screen and every FAIL. Where this sheet and the approved programme differ, the programme and the contract decide: note the difference. Send this sheet, the photos and the videos to Sinospect at the end of each day. Live video on request during the load steps and the protection trips.
机组和负载箱由工厂操作；见证工程师检查接线和仪器，并对照合同值记录读数。每项填写 PASS（合格）、FAIL（不合格）或 NA（不适用），并写读数和照片编号。所有铭牌、机体上打刻的发动机编号、每级负载时的负载箱显示、控制器屏幕及所有不合格项都要拍照。本表与认可的试验大纲不一致时，以试验大纲和合同为准，并注明差异。每天结束时把本表、照片和视频发给 Sinospect。加载试验和保护跳闸试验时按要求进行视频直播。

0 Rating plates and identity 铭牌及身份核对

Day 1. Fill in the datasheet value first, then what the plate shows. Photograph every plate and the engine number stamped on the block.
第一天。先填数据表值，再填铭牌实际内容。每块铭牌及机体上打刻的发动机编号都要拍照。

Item 项目	Datasheet 数据表	Plate 铭牌	Result 结果
Set: make, model, serial no. 机组：品牌、型号、出厂编号			
Prime / standby power (kVA, kW at PF 0.8) 常用 / 备用功率（kVA，功率因数 0.8 时 kW）			
Voltage, phases, frequency 电压、相数、频率			
Rated current (A), speed (r/min) 额定电流（A）、转速（r/min）			
Engine: make, model, serial no. on plate and on block 发动机：品牌、型号，铭牌编号及机体打刻编号			
Engine power (kWm), emission stage and certificate no. 发动机功率（kWm）、排放阶段及证书号			
Alternator: make, model, serial no. 发电机：品牌、型号、出厂编号			
Alternator rating (kVA), insulation class, IP, AVR model 发电机容量（kVA）、绝缘等级、防护等级、调压器型号			
Controller: make, model, firmware 控制器：品牌、型号、软件版本			
Main circuit breaker: make, rating (A), poles 主断路器：品牌、额定电流（A）、极数			
Fuel tank capacity (L) 油箱容量（L）			
Canopy or container type; mass (kg) 机罩或集装箱型式；重量（kg）			

G Contract values 合同值

Enter from the contract before the tests. Measured values come from sections R and LT.
试验前按合同填写。实测值取自 R 和 LT 部分。

Quantity 项目	Unit 单位	Contract value 合同值	Tolerance 允许偏差	Measured 实测	Result 结果
Prime power (PRP) 常用功率（PRP）	kW				
Standby power (ESP or LTP) 备用功率（ESP 或 LTP）	kW				
Performance class (ISO 8528-5) 性能等级（ISO 8528-5）	G1–G4				
Steady-state voltage band 稳态电压偏差	%				
Steady-state frequency band 稳态频率偏差	%				
Voltage dip on the load step, recovery time 突加负载电压降、恢复时间	%, s				
Frequency dip on the load step, recovery time 突加负载频率降、恢复时间	%, s				
Largest single load step accepted 一次突加负载最大值	% / kW				
Fuel consumption at 75% and 100% prime 75% 和 100% 常用功率油耗	L/h				
Sound level (if guaranteed), distance 噪声（如有保证）、测量距离	dB(A), m				

Ratings are at the ISO 3046-1 reference conditions (25 °C, 100 kPa, 30% relative humidity) unless the contract names site conditions. Voltage and frequency limits are those of the performance class; where the contract sets tighter limits, use the contract. 除合同规定现场条件外，功率按 ISO 3046-1 参考条件（25 °C、100 kPa、相对湿度 30%）。电压和频率限值按性能等级；合同规定更严时以合同为准。

A Documents and preparation 资料与准备

Day 1, before the set is started.
第一天，机组启动前。

#	Check 检查项目	Result 结果 PASS / FAIL / NA	Reading, remarks, photo no. 读数、备注、照片编号
1	Factory FAT programme received, approved by the client, and the version in use matches it 已收到工厂出厂试验大纲并经客户认可，现场使用的版本与之一致		
2	Datasheet, general arrangement drawing and wiring diagrams to hand; contract values entered in table G 数据表、总装图和接线图齐全；合同值已填入 G 表		
3	Engine test certificate and alternator routine test report, with serial numbers matching the plates 发动机试验证书和发电机出厂试验报告，编号与铭牌一致		
4	Emission certificate for the destination (e.g. EU Stage V) names this engine model; engine serial in its range if stated 目的地所需排放证书（如欧盟 Stage V）对应此发动机型号；如有编号范围，发动机编号在范围内		
5	Load bank: type (resistive or resistive-reactive), capacity in kW and kVAr, the power factor it can reach 负载箱：类型（纯电阻或阻感）、有功和无功容量、可达到的功率因数		
6	Instruments: power analyser or meter on the set's output, clamp meter, thermometer, insulation tester, sound level meter if needed; serial no. and calibration certificates in date 仪器：机组输出端的功率分析仪或电力仪表、钳形表、温度计、绝缘电阻表、必要时声级计；编号及有效校准证书		

#	Check 检查项目	Result 结果 PASS / FAIL / NA	Reading, remarks, photo no. 读数、备注、照片编号
7	Fuel measurement method agreed (weighing or flow meter) if consumption is guaranteed 如有油耗保证，确认油耗测量方法（称重或流量计）		
8	Permission to photograph and film the tests, the plates and the readings confirmed 确认允许对试验、铭牌及读数拍照和录像		
9	Ambient temperature, air pressure and humidity recorded at the start of each day 每天开始时记录环境温度、大气压力和湿度		

v Visual and mechanical inspection 外观及结构检查

Day 1, set stopped, canopy or container doors open.
第一天，机组停机，打开机罩或集装箱门。

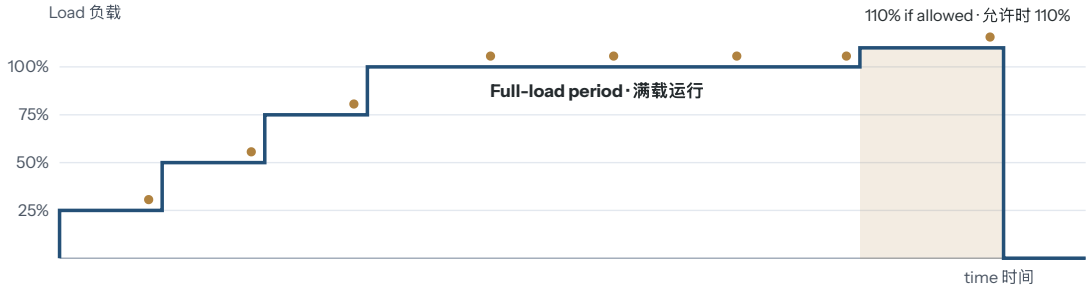
#	Check 检查项目	Result 结果 PASS / FAIL / NA	Reading, remarks, photo no. 读数、备注、照片编号
1	Every plate matches the datasheet (table 0); engine number on the block matches the plate and the certificate 所有铭牌与数据表一致（0 表）；机体打刻编号与铭牌及证书一致		
2	Base frame and anti-vibration mounts: welds, bolts, alignment of engine and alternator 底座及减振器：焊缝、螺栓、发动机与发电机对中		
3	Radiator, fan guard, belts and hoses; coolant with antifreeze at the right level 水箱、风扇护罩、皮带及水管；防冻液液位正确		
4	Air intake and filter; exhaust: flexible joint, silencer, rain cap, lagging 进气及空滤；排气：波纹管、消声器、防雨帽、隔热		
5	Fuel system: tank, lines, filters and water separator, drain valve; no leak 燃油系统：油箱、油管、滤清器及油水分离器、放油阀；无渗漏		
6	Lubricating oil level and grade; oil drain extended outside the canopy if ordered 机油液位及牌号；如订单要求，放油口引至机罩外		
7	Batteries and charger: rating, cable size, terminals protected, isolator 蓄电池及充电器：容量、线径、端子防护、隔离开关		
8	Control panel and controller: model as ordered, labels, emergency stop button outside 控制屏及控制器：型号符合订单，标识，外部急停按钮		
9	Main circuit breaker rating and settings; output terminals, cable glands, earthing point 主断路器额定值及整定；输出端子、电缆密封接头、接地点		
10	Canopy or container: doors and seals, sound insulation, lighting, lifting points, paint 机罩或集装箱：门及密封条、隔音棉、照明、吊点、油漆		
11	Accessories, spare parts, tools and manuals against the order list 附件、备件、工具及说明书与订单清单核对		

E Electrical checks before running 启动前电气检查

#	Test and what to witness 试验及见证要点	Limit or contract value 限值或合同值	Measured 实测	Result 结果
1	Insulation resistance of the alternator windings to earth; test voltage 发电机绕组对地绝缘电阻；测试电压	Per programme (MΩ) 按试验大纲（MΩ）		
2	Earth continuity: frame, canopy, alternator, panel and neutral link as ordered 接地连续性：底座、机罩、发电机、控制屏及中性点接地按订单	Continuous; neutral as specified 连通；中性点按规范		
3	Protection settings in the controller and breaker read and photographed 控制器和断路器保护整定值读取并拍照	As the protection schedule 按保护整定表		

R Running tests 运行试验

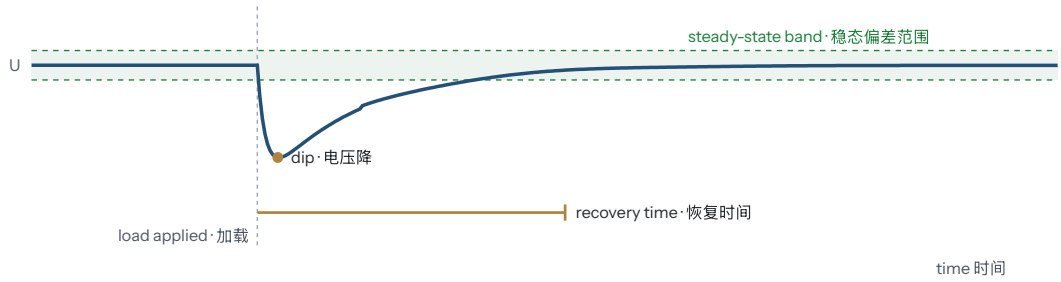
ISO 8528-6 test methods. Limits for voltage and frequency come from the performance class in table G (ISO 8528-5).
试验方法按 ISO 8528-6。电压和频率限值按 G 表中的性能等级（ISO 8528-5）。



The load programme: steps of 25, 50, 75 and 100% of prime power, the full-load period, then 110% if the rating allows. Read at each amber point.
加载程序：25%、50%、75%、100% 常用功率逐级加载，满载运行，额定允许时再加 110%。每个橙色点读数。

#	Test and what to witness 试验及见证要点	Limit or contract value 限值或合同值	Measured 实测	Result 结果
1	Start: from cold, number of attempts, time to rated voltage and frequency 启动：冷机，启动次数，达到额定电压和频率的时间	Starts first time; time per contract 一次启动成功；时间按合同		
2	No load: voltage, frequency, phase sequence, voltage adjustment range 空载：电压、频率、相序、电压调节范围	Rated values; sequence L1-L2-L3 额定值；相序正确		
3	Load steps 25, 50, 75, 100% of prime power, each held until the readings settle; record in section LT 25%、50%、75%、100% 常用功率逐级加载，每级稳定后读数；记入 LT 部分	Steady-state bands of the class 符合性能等级的稳态偏差		
4	Full load for the agreed time; temperatures stable, no leak, no alarm 满载运行至约定时间；温度稳定，无渗漏，无报警	Duration per contract 时间按合同		
5	Overload 110% for the agreed time, only if the prime rating allows it 110% 过载至约定时间，仅在常用功率允许时进行	Runs without trip or alarm 运行无跳闸、无报警		
6	Load acceptance: largest agreed step applied at once; record voltage and frequency dip and recovery time 突加负载：一次加上约定的最大负载；记录电压降、频率降及恢复时间	Table G (class limits) 按 G 表（等级限值）		
7	Load rejection: 100% to 0 at once; record voltage and frequency rise and recovery 突卸负载：100% 一次卸到 0；记录电压、频率上升及恢复	No overspeed trip; class limits 不触发超速停机；符合等级限值		

#	Test and what to witness 试验及见证要点	Limit or contract value 限值或合同值	Measured 实测	Result 结果
8	Power factor 0.8 test if a reactive load bank is available; otherwise note the power factor used 如有阻感负载箱，进行功率因数 0.8 试验；否则注明实际功率因数	Rated kVA at 0.8 lagging 功率因数 0.8 滞后下额定 kVA		
9	Protection trips: emergency stop, overspeed, low oil pressure, high coolant temperature, fail to start; each shuts the set down and shows the right alarm 保护跳闸：急停、超速、低油压、高水温、启动失败；每项均能停机并显示正确报警	Every trip works 每项保护有效		
10	Automatic start on mains failure, transfer switch and paralleling, only if ordered 市电故障自启动、ATS 切换及并机，仅限订单要求	Per contract 按合同		
11	Sound level at the agreed distance and points, if guaranteed; background level recorded 如有保证，按约定距离和测点测噪声；记录背景噪声	Table G 按 G 表		
12	After the run: walk the set for oil, coolant, fuel and exhaust leaks; check belts and fixings 试验后：检查机油、冷却液、燃油及排气有无渗漏；检查皮带和紧固件	No leak 无渗漏		



Load step: read the lowest voltage and the time until it is back inside the steady-state band. The same for frequency.
突加负载：读取最低电压及回到稳态偏差范围内的时间。频率同样处理。

LT Load test record 带载试验记录

One line per step, read once the values have settled. The power factor is the load bank's: a resistive bank runs at 1.0 and loads the alternator to about 80% of its rated current at full kW; note it.
每级负载一行，数值稳定后读数。功率因数取决于负载箱：纯电阻负载箱为 1.0，满功率时发电机电流只到额定电流的约 80%，须注明。

Load step 负载	Time 时间	V (L–L, 3 ph) 线电压	A (3 ph) 电流	kW 功率	PF 功率因数	Hz 频率	Oil bar 机油压力	Coolant °C 水温	Exhaust °C 排温
0%									
25%									
50%									
75%									
100% start									
100% end									
110%									

SH Preparation for shipping 发运准备

After the tests, if the set is prepared for shipping during the visit.
试验后，如访问期间进行发运准备。

#	Check 检查项目	Result 结果 PASS / FAIL / NA	Reading, remarks, photo no. 读数、备注、照片编号
1	Fuel drained to the level agreed for shipping 燃油放至约定的运输液位		
2	Batteries disconnected, or removed and packed, as the shipping method requires 按运输方式要求断开蓄电池，或拆下包装		
3	Coolant with antifreeze for the destination, or drained as agreed 冷却液按目的地加防冻液，或按约定放空		
4	Exhaust outlet, air intake and openings covered; doors locked 排气口、进气口及开口封堵；门已锁		
5	Loose parts, spare parts and documents packed against the packing list; shipping marks match the order 散件、备件及资料按装箱单包装；唛头与订单一致		

K Defects and deviations found 缺陷及偏差清单

#	Defect or deviation 缺陷或偏差	Where / which test 位置 / 试验项目	Photo no. / factory action 照片编号 / 工厂处理
1			
2			
3			
4			
5			

S Sign-off 签字确认

Witnessing engineer 见证工程师	Factory representative 工厂代表	Date 日期

Planning a generator FAT? Send the approved FAT programme or the contract's test clause, the set's datasheet, the factory location and the test week. We reply with the witness scope, the dates our engineer can attend and the fee.
sinospect.com/services/factory-acceptance-test-china/generator-fat-witnessing · jk@sinospect.com