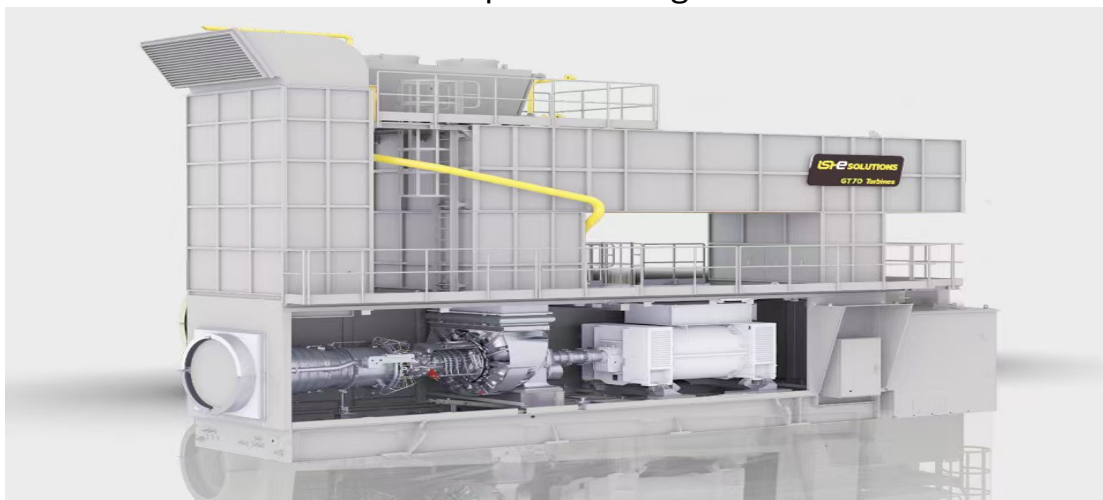


## 索拉 GT70 成套发电机组 Solar GT70 complete set of generator set



索拉是Caterpillar全资子公司，在全球超过90个国家安装了13500多台燃气轮机系统，累计超过14亿小时的运行时数。作为中小功率1到22MW燃气轮机顶尖供应商，索拉公司依据1509001质量体系设计制造坚固、可靠的产品，满足很多领域客户的能源需求和优化。

Solar, a wholly owned subsidiary of Caterpillar, has installed more than 13,500 gas turbine systems in more than 90 countries around the world, accumulating more than 1.4 billion hours of operating hours. As a leading supplier of medium and small power 1 to 22MW gas turbines, Solar designs and manufactures strong and reliable products based on the 1509001 quality system to meet the energy needs and optimization of customers in many fields.

### 性能特点

#### Performance characteristics

##### ★综合利用效率高

采用最先进技术，结构简单可靠，ISO发电效率高达34.3%，CHP项目综合利用效率≥80%，最高可达90%

##### ★ High comprehensive utilization efficiency

With the most advanced technology, simple and reliable structure, the ISO power generation efficiency is up to 34.3%, and the comprehensive utilization efficiency of CHP project is 80%, and up to 90%

##### ★排放低，NO<sub>x</sub> < 10ppm

索拉燃气轮机通过SoloNO<sub>x</sub>干式稀薄预混合燃烧技术可以满足现今世界任何地方的排放标准。50-100%功率范围。

##### ★ Low emission, NO<sub>x</sub> < 10ppm

Solar gas turbine can meet the emission standards of anywhere in the world with SoloNO<sub>x</sub> dry thin premixed combustion technology. The 50-100% power range.

★排气清洁

燃气轮机尾气具有清洁、干燥和富氧的特点，可用于干燥流程中热空气源、导入纯余热蒸汽锅炉、用于补燃余热锅炉的空气预热从而产生更多的蒸汽或直接引入吸收式制冷机中产生冷媒水。

★ exhaust cleaning

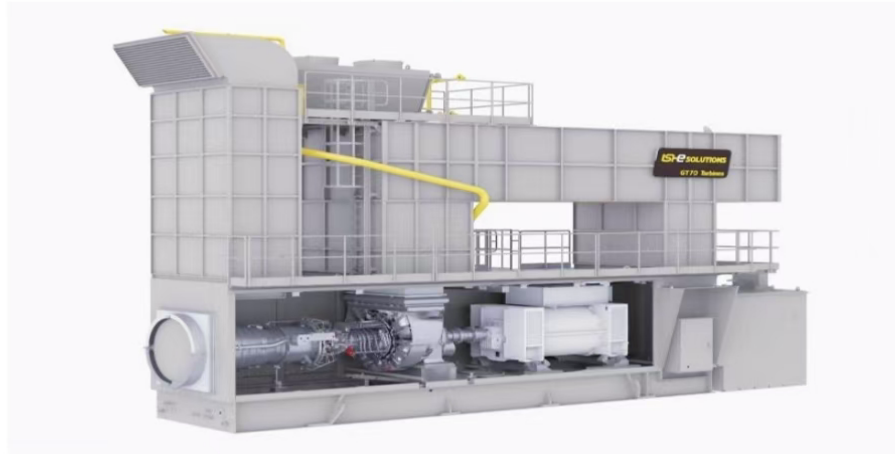
Gas turbine exhaust has the characteristics of clean, dry and oxygen rich, which can be used for hot air source in the drying process, the introduction of pure waste heat steam boiler, the air preheating used for supplementary combustion waste heat boiler to produce more steam or directly introduced into the absorption refrigerator to produce refrigerant water.

★设备参数

plant parameter

# SUOLA GT70

Powering the future with sustainable and innovative energy solutions



## Excellent performance with high power generation/integrated utilization efficiency



- Adopting the most advanced technology, simple and reliable structure, high efficiency of ISO power generation. Up to 34.3 percent
- Comprehensive utilization efficiency of CHP project  $\geq 80\%$ , up to 90

## Flexible start/stop for quick engagement



- Start-up to full load time without purge  $\leq 8$  minutes
- The number of starts and stops is not counted in the EOH

## LOW EMISSION, $\text{NO}_x < 10\text{ppm}$



- SoLoNO<sub>x</sub>™ combustion system, first-class low emission capability, to meet the stringent environmental emission requirements
- 50-100% power range

## High reliability and availability



icoh's design and manufacturing philosophy of safety, simplicity, reliability and durability.  
AF $\geq 99\%$ , RF $\geq 98\%$

## Single-axis structure suitable for power generation



- Simple structure with a common shaft for compressor, turbine and load
- Suitable for long time and high speed operation
- Good stability
- Excellent loading performance

## Complete and efficient after-sales service system



- Full lifecycle support, from pre-project consulting to overhauling
- 8 manufacturing plants, 2 overhaul centers, 60 service locations
- Trained and experienced local service engineers

# SUOLA GT70

Powering the future with sustainable and innovative energy solutions

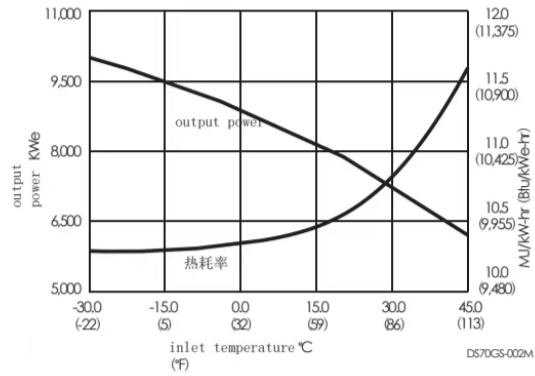
## GT70 tech data

structure	single axle
power (ISO)	8.18MWe
efficiency (ISO)	34.3%
fuel input	23.2MJ/s
exhaustion flow volume	26.85kg/s
exhaustion temperature	520°C
10Barevaperate volume	16.8t/h
dimensions L*w*h)	14.85m×4.30m×9.42m

## Features of complete sets of products

- Modular design developed specifically for the power generation market
- Highly integrated, plug and play
- Optional integrated electrical equipment bay
- Option to support multiple unit installations
- Reduced on-site installation and commissioning time
- Standardized interfaces and interconnection kits
- Reduced infrastructure needs and requirements
- Reduces maintenance downtime
- Easy relocation features
- Maintains long-term asset value

## available power



### notes:

- 1) Nominal ratings in accordance with ISO, 15°C, sea level (0 m), 60% relative humidity.
- Intake and exhaust losses, no accessory losses
- 2) Field conditions for steam production: 15°C, sea level (0 m), 0.75 k Pa intake loss, 2.50 k Pa exhaust loss, natural gas fuel, full load;
- Inlet temperature
- Natural gas used above LHV= 35 MJ/Nm<sup>3</sup>
- T60 engine efficiency: 34.4%
- GT60 can be fueled with a pipeline gas mixture of ≤20% H<sub>2</sub>
- Operating ambient temperature conditions: -20°C to 40°C
- Outdoor standard and trailer module packages available

★设备清单equipment list

序号 Order number	名称 name	型号规格 ts(type specification)	单位 unit	数量 quantity	制造商/原产地 Manufacturer / place of origin
一	索拉进口部分Sora import part				
1	卡特彼勒索拉T70干式低排放燃气轮机发动机组 The Caterpillar Sola T70 dry, low-emission gas turbine engine set	T70 ISO 发电功率:7965 千瓦 T70 ISO power generation power: 7,965 kW	套 set	1	索拉/美国 Sola / USA
1.1	底座 lampstand	钢结构底架 Steel structure bottom frame	套 set	1	索拉/美国 Sola / USA
1.2	金牛 70 干式低排放燃气轮机 The Taurus 70 dry-type low-emission gas turbine	Taurus70, 含燃机本体保温 Taurus70 ncluding the gas turbine body insulation	套 set	1	索拉/美国 Sola / USA
1.3	减速齿轮箱 reduction gear box	Rated Power:12100hp Ratio:10.09548	套 set	1	索拉/美国 Sola / USA
1.5	启动系统 start-up system	直驱交流启动电机 Direct-drive AC starting motor	套 set	1	索拉/美国 Sola / USA
1.6	燃料系统 fueling system	仅橇内系统 Sled system only	套 set	1	索拉/美国 Sola / USA
1.7	润滑系统 lube oil system	含润滑油箱及加热系统、主润滑油泵、预/后润滑油泵, 120V直流备用润滑油泵、过滤器 Including lubricating oil tank and heating system, main lubricating oil pump, pre-pump / rear lubricating oil pump, 120V DC standby lubricating oil pump and filter	套 set	1	索拉/美国 Sola / USA
1.8	控制及监视系统 Control and monitoring system	含橇装显示控制系统及远程控制, 中英双语显示 Including skid-mounted display	套 set	1	索拉/美国 Sola / USA

		control system and remote control, Chinese and English bilingual display			
1.9	包装 pack ;	适合长期保存的封装, 含中英双语标签 Suitable for long-term preservation of the packaging, including Chinese and English bilingual labels	个 number	1	索拉/美国 Sola / USA
1.10	测试及文件 Testing and documentation	按照索拉规范进行的工厂标准测试、电子CD版质量控制文件 Factory standard test, electronic CD version quality control documents according to Sola specification	个 number	1	索拉/美国 Sola / USA
1.11	资料 datum	含图纸和运行维护手册 Includes drawings and operation and maintenance manual	套 set	1	索拉/美国 Sola / USA
1.12	随机用零配件 Random parts	N/A	套 set	1	索拉/美国 Sola / USA
二	中国配套部分 Supporting parts of China				
1	发电机 generator	10.5kV, 50 Hz	个 number	1	湘潭电机/中国 Xiangtan Electric Motor / China
2	燃料系统双联过滤系统 Fuel system double-filtration system	精度:2-5um 工作温度:-20~93°C accuracy:2-5um Operating temperature: -20~93°C	套 set	1	中国 China ;
3	润滑系统 lube oil system	空冷滑油冷却器(337L/分钟);油雾分离器HYDAC/中国 Air cooled slide oil cooler (337L / min); oil mist separator HYDAC / China	套 set	1	中国 China
4	联轴器 coupling	干式, ESCO/比利时 Dry-type, ESCO / Belgium	套 set	1	中国 China
5	控制及监控系统 Control and monitoring system	远程控制台式 PC 机 通讯协议, 针式打印机记录仪 Remote control	套 set	1	中国 China

		desktop PC Communication protocol, the needle printer recorder			
6	机罩 hood	动灭火系统 含通风系统 (G4) 二氧化碳自 The dynamic fire extinguishing system contains the ventilation system (G4) carbon dioxide from	套 set	1	中国 China
7	透平空气进气系统 Turbine air intake system	G4+E10 过滤, 燃气进 气消声器 G4 + E10 filter, gas intake muffler	套 set	1	中国 China
8	设备拆装吊具和支架 Equipment disassembly and assembly of the hanger and bracket	机组大修时, 将提供此工具, 供客户维修使用 This tool will be provided for customer maintenance during unit overhaul	套 set	1	中国 China
9	透平清洗系统 Flat cleaning system	燃机清洗时使用, 可多台公用 一套工具 Gas turbine cleaning when use, can be more than one set of common tools	套 set	1	中国 China
10	EEC 电气箱 EEC, Electrical Box	包含VFD 直流电池柜和交直流 控制柜 Contains VFD DC cell cabinet and AC / DC control cabinet	套 set	1	中国 China
10- a	直流电池柜 DC pool cabinet	电池充电器系 统:2.8kVA, 2.0kw:电池:120VDC, 100AH Battery charger system: 2.8 kVA, 2.0 kW: Battery: 120VDC, 100 AH	块 piec e	1	中国 China
10- b	交直流控制柜 CrossDC control cabinet	(E30和 E51) 含所有燃气轮 机及配套设备供电和控制。 (E30 and E51) including the power supply and control of all gas turbine and supporting equipment.	块 piec e	1	中国 China
10- c	启动系统变频驱动 (VFD) Starting system frequency conversion drive (VFD)	品牌:AB,为启动电机提供动 力, 集成在 EEC 箱体中 Brand: AB, provides power for starter motor, integrated in EEC, box	套 set	1	中国 China

11	二氧化碳钢瓶 柜Carbon dioxide steel cylinder cabinet	5*42kg钢瓶, 单瓶容量 70L 5 * 42kg cylinder, single bottle capacity of 70L	套 set	1	中国 China
12	预埋件 built-in fitting ;	机组与地基安装时使用 Use when installing the unit and the foundation	套 set	1	中国 China
	技术资料 technical data ;	见技术协议相关章节 See the relevant sections of the technical protocol	套 set	1	中国 China