

WHO IS Feng Cheng

關於我們

Founded in Taiwan/Taichung City, FENG CHENGpower® is a research, development and production of natural gas generating sets, biogas generating sets, diesel generating sets, power car complete sets of equipment and smart power plants. , Sales and service of high-tech enterprises. With the influence of high-tech demand and brand in the market, JV's extensive cooperation with gas-related manufacturing manufacturers such as engine manufacturing, electric ball and controller in Asia (Europe), (USA) and (Asia) Technical cooperation, continuous innovation, to create the most secure, reliable and environmentally friendly power generation equipment to provide users with the most complete power system application solutions.

FENG CHENGpower® company motto

- 一、If there is no passion for work, it is equivalent to giving up the job.
- 二、Habits change personality, personality change destiny.
- 三、Happiness is priceless; if you are not happy, please be happy first.
- 四、self-help God help.
- 五、Lack of learning is the choice of backwardness, choose to leave.
- 六、The life without a dream is miserable, and the action without a plan is blind.
- 七、Rapid response, immediate action; 100 good ideas than one action.
- 八、losers find excuses; success to find ways.
- 九、Forever only business, no business.
- 十、Born in a crisis, died in peace.

FENG CHENGpower® adheres to the corporate spirit of "Passion, Integrity, Teamwork and Innovation" and has become a "solution provider of composite power solutions."

怡和企業有限公司(FENG CHENGpower®風城 怡和企業)創立於台灣/台中市，是一家從事天然氣發電機組、沼氣發電機組、柴油發電機組、電源車成套設備及智能電源車站研發、生產、銷售和服務的高新技術企業。隨著市場高新需求與品牌的影響力，怡和企業與海外(歐)、(美)、(日)亞洲地區生產製造發動機/電球/控制器等燃氣相關配套 的生產製造廠家，廣泛開發與技術合作，以不斷創新，打造最安全、可靠、環保的發電設備 為用戶提供最完善的電力系統應用解決方案。

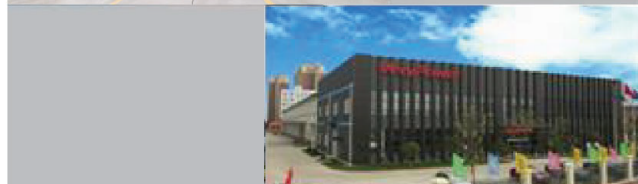
FENG CHENGpower® 公司格言

- 一. 如果沒有工作激情，那就等於放棄工作。
- 二. 習慣改變性格，性格改變命運。
- 三. 快樂是無價的；如果你不快樂，請先快樂起來。
- 四. 自助者天助。
- 五. 怠於學習就是選擇落後，選擇離開。
- 六. 沒有夢想的人生是悲慘的，沒有計畫的行動是盲目的。
- 七. 快速反應，馬上行動；100個好的想法 不如一個行動。
- 八. 失敗者找藉口；成功者找方法。
- 九. 永遠只有創業，沒有守業。
- 十. 生於憂患，死於安樂。

FENG CHENGpower® 秉承“激情、誠信、團隊、創新”的企業精神，成為“複合電力能源方案解決商”。

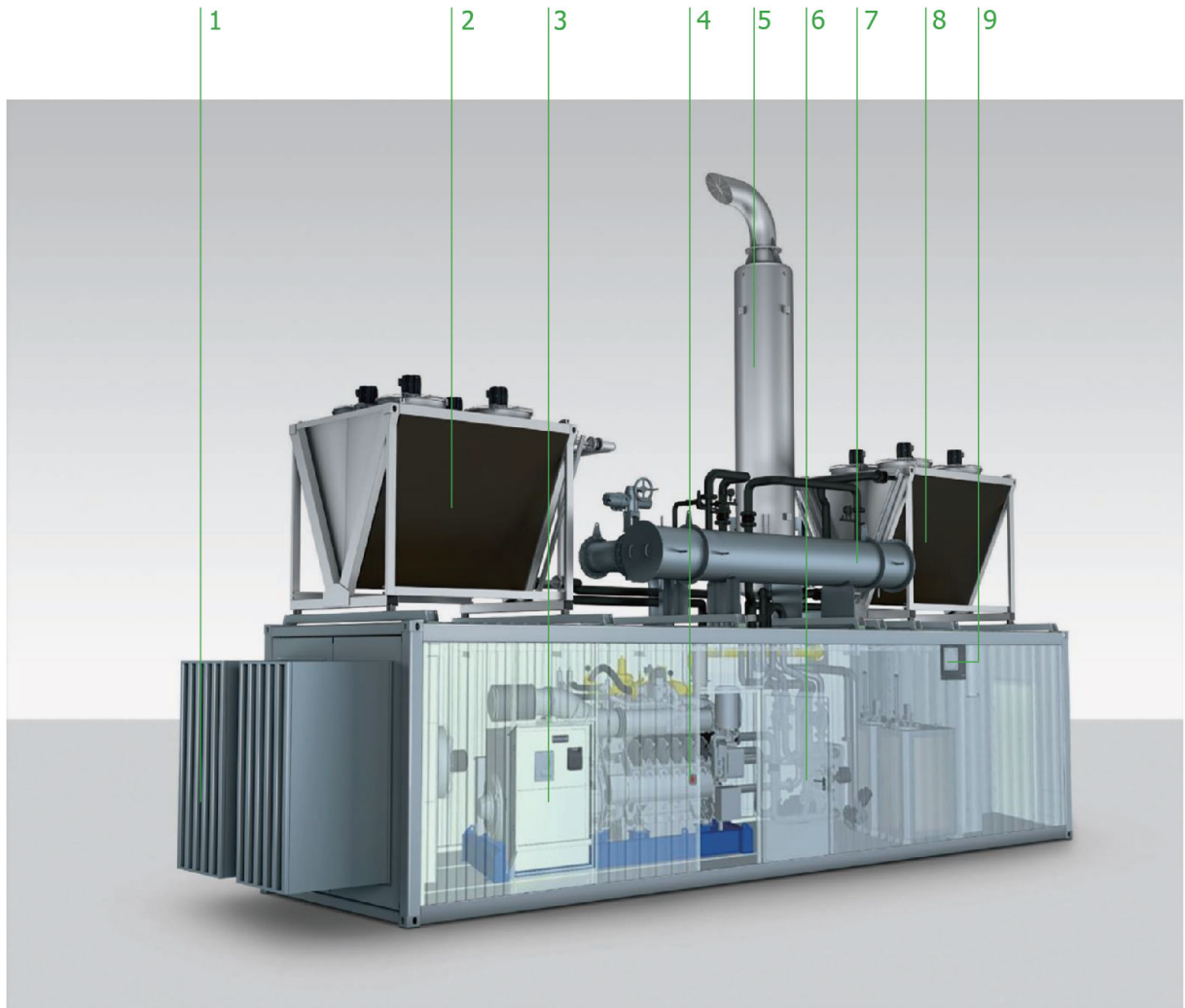


FENG CHENGpower®
風城 怡和企業



ONE-STOP SOLUTION FOR GAS ENGINE GENERATOR SETS

一站式成套解決方案 *FENG CHENGpower*



DESCRIPTION OF INDIVIDUAL COMPONENTS

FENG CHENG power

箱式機主體結構

- | | |
|---|--|
| 1. Air inlet
進風口 | 6. Accessdoor engineroom
機房檢修門 |
| 2. Recooling systems for mixture cooling circuit
混合物冷卻回路的二次冷卻系統 | 7. Exhaust gas heat exchanger w/ bypass
排氣熱交換器 / 旁路 |
| 3. Genset control system including customer's connection
發電機組控制系統包含客戶連接端 | 8. Recooling systems for jacket water cooling circuit
缸套冷卻水二次冷卻系統 |
| 4. Emergency stop button
急停按鈕 | 9. Fuel gas inlet
燃氣進口 |
| 5. Exhaust silencer
排氣消音器 | |

PRODUCT LIST 型錄

Model 型號	Efficiency 效率				Engine Origin 發動機原產地
	@1.0 pf 電功率	Electric efficiency 電效率	Thermal Efficiency 熱效率	Total Efficiency 總效率	
	KWe	%	%	%	
FengCheng series 1 gas/biogas Genset 1 系列燃氣/沼氣發電機組					
VPG30	30	29	40	69	SE/VERY
VPG50	50	32	40	72	SE/VERY
VPG90	90	33	40	73	SE/VERY
Feng Cheng series 2 gas/biogas Genset 2 系列 燃氣/沼氣發電機組					
VPG100	100	34	40	74	GER/VERY
VPG120	120	35	41	76	GER/VERY
VPG150	150	36	41	77	GER/VERY
VPG180	180	34	42	76	GER/VERY
VPG200	200	36.6	42	78.6	GER/VERY
Feng Cheng series 3 gas/biogas Genset(Top-ranking in the World) 3 系列燃氣/沼氣發電機組 (世界一流)					
VPG350	350	39.4	47.9	87.3	GERMAN
VPG430	430	39.4	47.3	86.7	GERMAN
VPG520	520	39.7	46	85.7	GERMAN
Feng Cheng series 4 gas/biogas Genset(Top-ranking in the World) 4 系列燃氣/沼氣發電機組 (世界一流)					
MTU8V4000GS	776	41.9	46.7	88.6	GERMAN
MTU12V4000GS	1165	42.4	46.2	88.6	GERMAN
MTU16V4000GS	1554	42.6	45.6	88.2	GERMAN
MTU20V4000GS	1948	42.6	46.6	89.2	GERMAN

Application

CCHP market (hotels, hospitals, shopping malls, commercial complexes, data centers, large factories, etc.)

Biogas power plant (landfill, sewage, agricultural, distillery, Starch,sugar refinery);

Oil and gas field power plant (associated gas, coal gas, shale gas)

應用市場

天然氣冷熱電聯供市場 (酒店, 醫院, 商場, 商業綜合大樓, 數據中心, 大型工廠等) ;

沼氣發電市場 (城市垃圾填埋場, 污水處理場, 畜牧農業, 酒精, 澱粉, 製糖廠等) ;

油氣田發電市場 (開採現場的伴生氣, 煤層氣, 頁岩氣等發電項目。)

GAS / GASOLINE GENSET(HOUSEHOLD)

油/氣兩用型發電機組（家用型）

FENG CHENG'S **5S** PHILOSOPHY WITH
MATURE TECHNOLOGY

風城怡和 5S 理念和發動機成熟可靠的技術



SAFE
安全環保

Lean burn technology can meet most of the regulation in the world, and the emission can further customized processed under your requirement.

稀薄燃燒保證了燃燒更加充分，排放更加環保



SAVE
經濟節能

Low consumption in fuel, spare parts are compatibility with gasoline engine by which the maintenance cost

耗氣低，維修成本低，部分零配件與汽油機通用。



STABLE
穩定可靠

They are inherited diesel generator set's unique double wall reinforced wide body and frame crankcase structure. On the other hand, Econtrols's new generation CFV gas supply system ensure the gas supplying with continuous and accurate, lean combustion to lead combustion more fully

具有國內領先水平，新一代燃氣機獨特的雙壁加強型寬體機，框架式曲區軸箱結構，提高了產品的穩定性。



SMART
人性智能

According to the actual requirements of customers, design control units and functions to meet the grid, stand-alone operation of various requirements

可根據客戶實際要求，設計控制單元和功能，滿足併網，單機運行各種要求。



SERVICEABLE
省心耐用

Thanks to national high-tech achievement the genset have mature technology with optimization, on the other hand, compatible spare parts make sure the service available

先進和成熟的技術，高強度的結構和關鍵零部件，以及通用便捷的零部件供應，保證了使用壽命和服務。



NEW PETROL/GAS(BIOGAS) HOME BOX TYPE GENERATOR

新型汽油 / 燃氣(沼氣)家用箱式發電機組

Genset Model 機組型號	Power 機組功率		Engine Model (50HZ/1500rpm) 發動機型號	Fuel Type 燃料類別	Engine Model 機組尺寸	Weight (Kg) 淨重
	kW	kVA			Dimension(mm) 尺寸 (LxWxH)	
VPV8G PD8REG-FB	8	8	CH740	LPG	1150×670×640	220
	7	7		NG		
VPV20G PD17REG-C	17.6	22	465Q	LPG	1290×825×940	450
	16	20		NG		
	15	18.8				
VPV25G PD23REG	23	28.8	BJ410	LPG	1290×825×940	422
	22	27.5		NG		
	20	25				
VPV30G PD30REG	28	35	B12	LPG	1560×890×970	500
	24	30		NG		

New petrol/gas home box type generator, patented products. With beautiful, energy saving, low noise, easy to operate, easy to move, etc; Using electronic speed, AVR voltage regulator, and intelligent control; Provide two kinds of single-phase, three-phase voltage selection, can also be special customized according to user requirements. Optional: rare earth energy saving brushless generator, combined heat and power (CHP) system, automatic control, remote control, group control systems; For gas generator, adapt to a variety of gas input (LPG, NG)

FENG CHENG SERIES 1 GAS/BIOGAS GENSET

1 系列 燃氣/沼氣發電機組

FENG CHENG'S **5S** PHILOSOPHY AND
MATURE TECHNOLOGY

風城怡和成熟可靠的 5S 技術理念



SAFE

安全環保

Inherit the latest conceptual design, maximum bearable 17MPa
繼承歐洲最新概念設計，最高可承受 17MPa 爆發壓力



SAVE

經濟節能

High strength structure ensure the long-term cycle life, which shake out cost of depreciation

高強度結構，確保動力儲備，延長使用壽命，降低折舊成本。



STABLE

穩定可靠

Strength is 18% higher than domestic main competitive engine, 5~10% margin power guarantee reliability in long term, unique design for cylinder cooling system ensure better cooling protection

發動機強化水平較國內主流產品高 18%，動力有 5~10% 裕度，保證了長期運行的可靠性，四汽門整體式氣缸蓋雙層冷卻水套確保了更好的冷卻效果。



SMART

人性智能

According to the actual requirements of customers, design control units and functions to meet the grid, stand-alone operation of various requirements

可根據客戶實際要求，設計控制單元和功能，滿足併網，單機運行各種要求。

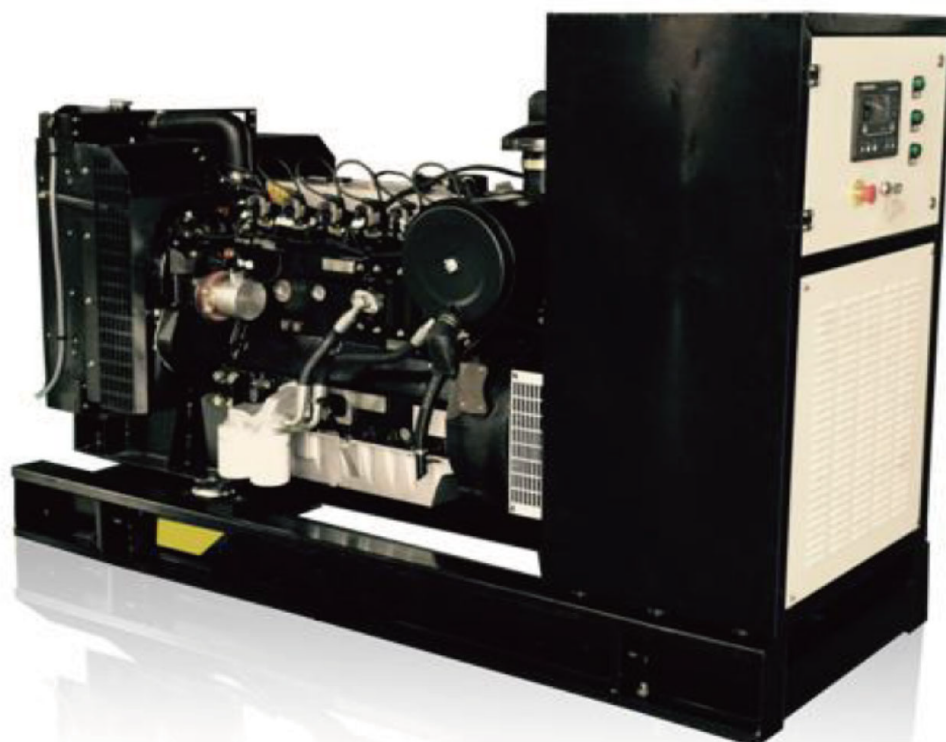


SERVICEABLE

省心耐用

High strength structure, light load with advanced cooling system make sure long running life, while compatible spare parts guarantee the serviceability.

高強度的結構，動力匹配的裕度，加上通用的零配件供應保證了使用壽命和維護便利性。



FENG CHENG SERIES 1 GAS/BIOGAS GENERATOR SETS

風城怡和 1 系列燃氣/沼氣發電機組

Model	Efficiency				Dimension 尺寸	Weight (Kg) 重量
	Power@1.0 pf 持續電功率	Electric efficiency 電效率	Thermal Efficienc 熱效率	Total Efficiency 總效率		
	KWe	%	%	%		
VPG30	30	29	40	69	1254*718*955	480
VPG50	50	32	40	72	1516*718*955	590
VPG90	90	33	40	73	1616*793*1099	610

Application

CCHP market (hotels, hospitals, shopping malls, commercial complexes, data centers, large factories, etc.)

Biogas power plant (landfill, sewage, agricultural, distillery, Starch, sugar refinery);

Oil and gas field power plant (associated gas, coal gas, shale gas)

應用市場

天然氣冷熱電聯供市場（酒店，醫院，商場，商業綜合大樓，數據中心，大型工廠等）；

沼氣發電市場（城市垃圾填埋場，污水處理場，畜牧農業，酒精，澱粉，製糖廠等）；

油氣田發電市場（開採現場的伴生氣，煤層氣，頁岩氣等發電項目。）

FENG CHENG SERIES 2 GAS/BIOGAS GENSET

2系列 燃氣/沼氣發電機組

FENG CHENG'S **5S** PHILOSOPHY
MATURE TECHNOLOGY

風城怡和**5S**理念成熟可靠的技術



SAFE

安全環保

Lean burn technology can meet most of the regulation in the world, and the emission can further customized processed under your requirement.

稀薄燃燒保證了燃燒更加充分，排放更加環保



SAVE

經濟節能

Low gas consumption, low maintenance costs, some common spare parts.

耗氣低，維修成本低，部分零配件通用。



STABLE

穩定可靠

With the leading domestic level, the unique double-wall widening machine, frame-type crankcase Structure, improve the stability of the product.

具有國內領先水準，獨特的雙壁加強型寬體機，框架式曲軸箱結構，提高了產品的穩定性。



SMART

人性智能

According to the actual requirements of customers, design control units and functions to meet the grid, stand-alone operation of various requirements

可根據客戶實際要求，設計控制單位和功能，滿足併網，單機運行各種要求。



SERVICEABLE

省心耐用

Advanced and proven technology, high-strength structure and key components, as well as common and convenient parts supply, Guarantee the service life and service.

先進和成熟的技術，高強度的結構和關鍵零部件，以及通用便捷的零部件供應，保證了使用壽命和服務。



FENG CHENG SERIES 2 GAS/BIOGAS GENERATOR SETS

風城怡和 2 系列燃氣/沼氣發電機組

Model 機組型號	Efficiency 效率				Dimension 尺寸	Weight (Kg) 重量
	Power @1.0 pf 持續電功率	Electric efficiency 電效率	Thermal Efficiency 熱效率	Total Efficiency 總效率		
	KWe	%	%	%		
VPG100	100	34	40	74	2800*1200*1800	1850
VPG120	120	35	41	76	2800*1200*1800	1900
VPG150	150	36	41	77	2800*1200*1800	1950
VPG180	180	34	42	76	3000*1260*1980	2100
VPG200	200	36.6	42	78.6	3000*1260*1980	2100

Application

CCHP market (hotels, hospitals, shopping malls, commercial complexes, data centers, large factories, etc.)

Biogas power plant (landfill, sewage, agricultural, distillery, Starch, sugar refinery);

Oil and gas field power plant (associated gas, coal gas, shale gas)

應用市場

天然氣冷熱電聯供市場（酒店，醫院，商場，商業綜合大樓，數據中心，大型工廠等）；

沼氣發電市場（城市垃圾填埋場，污水處理場，畜牧農業，酒精，澱粉，製糖廠等）；

油氣田發電市場（開採現場的伴生氣，煤層氣，頁岩氣等發電項目。）

FENG CHENG SERIES 3 GAS/BIOGAS GENSET

3 系列 燃氣/沼氣發電機組

FENG CHENG'S **5S** PHILOSOPHY WITH MAN'S
ADVANCED TECHNOLOGY

風城怡和 的 5S 理念和德國 MAN
先進而嚴謹的技術



SAFE

安全環保

Germany standard in safety and remission regulation, low consumption preserves resources and contributes actively to protection of the environment. To comply with the strict TA-Luft and TA-Luft ½ emissions directive

採用德國安全和環保標準，滿足世界上絕大部分國家和地區的各种法規和要求。



SAVE

經濟節能

Designed for maximum electrical and thermal efficiency
為最大電效率和總效率而設計

Compact engine saving space
緊湊的結構節省安裝和運行空間

Low operating and service costs
較低的運行和維護成本，攤平全生命周期成本



STABLE

穩定可靠

Outstanding performance with the best MAN engine. This flexibility allows perfect adaptation of natural gas and special gas engines to all requirements

MAN 先進和可靠的引擎保證了發電機組的穩定性和可靠性，除了天然氣，其他經過合適處理的特殊燃氣也能穩定運行。



SMART

人性智能

Monitor and Control system can customized under your requirement
監控系統可根據現場環境和客戶要求，人性化訂製設計。



SERVICEABLE

省心耐用

Up to 80000 hours lifecycle

They achieve ultimate service life through their application-specific design and famous ruggedness. Their sophisticated and easily accessible construction enables maintenance work to be carried out promptly, efficiently, and at low cost. Wearing parts can be replaced without complication

高達 8 萬小時生命周期，不僅維護成本低，而且維護方便快捷。



FENG CHENG SERIES 3 GAS/BIOGAS GENERATOR SETS(Top-ranking in the World)

風城怡和 3 系列燃氣/沼氣發電機組（世界一流）

Model 機組型號	Efficiency				Dimension 尺寸	Weight (Kg) 重量
	@1.0 pf 持續電功 率	Electric efficiency 電效率	Thermal Efficiency 熱效率	Total Efficiency 總效率		
	KWe	%	%	%		
VPG350	350	39.4	47.9	87.3	2750*1500*1450	2350
VPG430	430	39.4	47.3	86.7	3100*1500*1600	3000
VPG520	520	39.7	46	85.7	3300*1700*1600	3300

Application

CCHP market (hotels, hospitals, shopping malls, commercial complexes, data centers, large factories, etc.)

Biogas power plant (landfill, sewage, agricultural, distillery, Starch, sugar refinery);

Oil and gas field power plant (associated gas, coal gas, shale gas)

應用市場

天然氣冷熱電聯供市場（酒店，醫院，商場，商業綜合大樓，數據中心，大型工廠等）；

沼氣發電市場（城市垃圾填埋場，污水處理場，畜牧農業，酒精，澱粉，製糖廠等）；

油氣田發電市場（開採現場的伴生氣，煤層氣，頁岩氣等發電項目。）

FENG CHENG SERIES 4 GAS/BIOGAS GENSET

4 系列 燃氣/沼氣發電機組

MTU Onsite Energy is one of the core brands of Rolls-Royce Power Systems AG, which is a world-leading provider of high- and medium-speed diesel and gas engines, complete drive systems, distributed energy systems and fuel injection systems for the most demanding requirements.

MTU Onsite Energy offers complete power system solutions: from mission critical to standby power to continuous power, heating and cooling. We also provide a full line of service products to help you get the most from your equipment.

Customers around the world trust us to provide reliable power for a wide range of applications, such as healthcare, data centers, airports, farms and independent power stations. Our product portfolio covers diesel generator sets up to 3,250 kW, gas-powered cogeneration systems up to 2,500 kW and gas turbines up to 50,000 kW. This product offering is complemented by medium-speed engines for land-based energy solutions up to 9,300 kW as part of the Rolls-Royce Power Systems AG product portfolio.

More than 60 years of power generation systems expertise and over a century of diesel engine engineering experience have enabled us to provide complete solutions all over the globe. And we continue to develop sustainable alternatives, with systems that produce greener energy from climate-neutral, regenerative fuels, such as combined heat and power (CHP) plants fueled by biogas, landfill gas or sewage gas.

MTU Onsite Energy gas engine systems:

We have three types of systems:

// Gas generator sets: for power generation

// Combined heat and power modules (CHP), also called block heat and power plants: for the generation of power and heat

// Combined heat, power and cooling energy modules (CHPC): for the generation of power, heat and cooling energy (in combination with appropriate cooling units) Since these systems convert the primary energy carrier gas into power, power and energy, or power, heat and

cooling energy directly on site, the energy is generated exactly where it is needed – without any transmission losses.

MTU Onsite Energy develops, manufactures and provides gas engine systems for operation with natural gas, biogas and other specialty gases.

Biogas as fuel

In the energy mix of the future, gases from biotic substances will play an important role. These so-called "biogases" include:

// "Traditional" biogas, emerging during the fermentation of agricultural raw or waste material

// Sewage gas and sludge gas, generated during wastewater treatment or during sewage sludge digestion

// Landfill gas, escaping from landfill sites

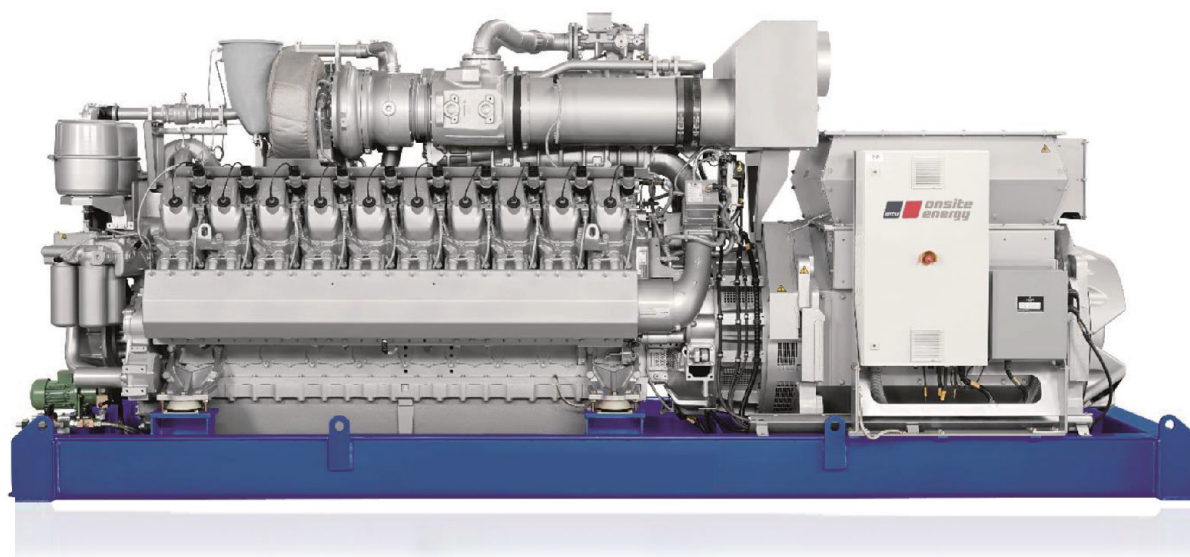
MTU Onsite Energy gas engine systems utilize the great potential these biogases offer. They generate power, heat and cooling energy from biogas, sewage gas and landfill gas in any combination – ecologically, reliably and highly efficiently. In many locations, government subsidies in a biogas plant even more financially attractive.

With a power range from 190 kWel to 1,950 kWel, our biogas-based systems are applicable for a wide range of uses.

Natural gas as fuel

Today's energy production is mainly focused on fossil fuels. However, the limited supply of these fuels as well as conventional technologies' negative impact on the environment and our climate have promoted a shift towards new energy policies.

In favor of an improved global ecological balance, natural gas will replace other fossil fuels to produce clean energy. Gas powered energy systems offer great potential for playing an important role in the energy mix of the future – and our gensets and modules can effectively explore this potential. Technologically mature, they combine highest performance with low emissions. Thanks to their broad power range from 120 kWel to 2,500 kWel, our gas engine systems based on natural gas are widely applicable in various areas.



FENG CHENG SERIES 4 GAS / BIOGAS GENERATOR SETS(Top-ranking in the World)

風城怡和 4 系列燃氣/沼氣發電機組（世界一流）

Model 機組型號	Efficiency 效率				Dimension 尺寸	Weight (Kg) 重量
	@1.0 pf 持續電 功率	Electric efficiency 電效率	Thermal Efficiency 熱效率	Total Efficiency 總效率		
	KWe	%	%	%		
MTU8V4000GS	776	41.9	46.7	88.6	4200*2000*2300	10350
MTU12V4000GS	1165	42.4	46.2	88.6	5000*2000*2300	14500
MTU16V4000GS	1554	42.6	45.6	88.2	5500*2000*2300	16500
MTU20V4000GS	1948	42.6	46.6	89.2	5900*2000*2400	19700

Application

CCHP market (hotels, hospitals, shopping malls, commercial complexes, data centers, large factories, etc.)

Biogas power plant (landfill, sewage, agricultural, distillery, Starch, sugar refinery);

Oil and gas field power plant (associated gas, coal gas, shale gas)

應用市場

天然氣冷熱電聯供市場（酒店，醫院，商場，商業綜合大樓，數據中心，大型工廠等）；

沼氣發電市場（城市垃圾填埋場，污水處理場，畜牧農業，酒精，澱粉，製糖廠等）；

油氣田發電市場（開採現場的伴生氣，煤層氣，頁岩氣等發電項目。）

NATURAL GAS APPLICATION 天然氣分布式能源應用

Whatever you require – power only, power and heat or even power, heat and cooling: MTU Onsite Energy systems fulfill your demands.

無論您有何需求—發電，熱電聯供或乃至熱電冷聯供：MTU Onsite Energy 的系統均可滿足您的需求。

Power supply 供電

Our gas generator sets can be used to provide power around-the-clock to locations where the power supply is not reliable or even nonexistent. According to the demands, our systems can be deployed for grid-parallel or off-grid operation.

我們的燃氣發電機組可用來為供電不穩定或者根本無法供電的地方晝夜持續不斷地供電。根據需要，我們的燃氣發動機系統可採用電網並行或者電網離網工作配置方式。

A special application of power generation plants are power stations based on gas engines. They secure medium- and long-term power generation for projects that have to be developed and implemented fast, and often under critical conditions. Aligned with all requirements on-site, we deliver and service highly efficient power station solutions in a power range of 200 MW and more.

這些發電設備的一個特殊應用場合就是以燃氣發動機為基礎的發電站。對於需要加快開發和實施進度及經常處於關鍵情況下的工程項目，這些燃氣發動機可確保為其提供中長期電力供應。我們可以為客戶提供 200Mw 及以上功率的高發電站解決方案及相關服務，滿足客戶的所有現場需求。



Power and heat supply (CHP) 熱電聯供 (CHP)

Many applications require extra heat in addition to power. Hospitals, schools, sports facilities, office and administrative buildings, industrial enterprises with heat-intensive manufacturing methods, department stores and shopping centers often separately generate heat and obtain power from the public grid. CHP plants from MTU Onsite Energy provide a significantly more economical alternative.

Generally, a CHP plant from MTU Onsite Energy consists of a motor-generator unit and heat exchangers for waste heat utilization. The generated power can either be used to cover internal demands or be fed into the public grid. Besides being utilized for heating purposes, the thermal energy can also be deployed as process heat. From engine cooling water to waste gas, the inclusion of various heat sources is individually customized for your unique situation to provide you with the greatest benefit.

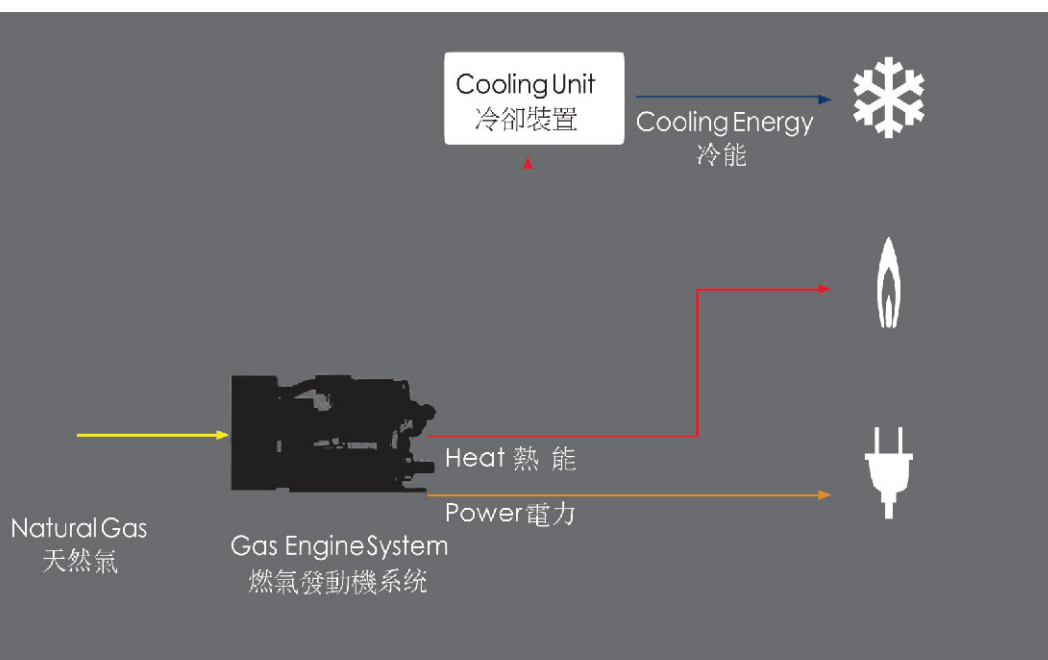
很多應用場合除了需要電力外還需要額外的熱量。醫院，學校，體育場所，辦公室和行政大樓，採用熱密集型製造方法的工業企業，百貨商店和購物中心通常單獨供熱，單獨從公用電網獲取電能。MTU Onsite Energy的CHP裝置提供了一個更為經濟的替代方案。

MTU Onsite Energy的CHP裝置一般由發電機組以及可利用廢熱的換熱氣器組成。所發出電能既可用來滿足內部需求，也可輸送到公用電網上。除了可用於供暖外，該熱能也可作為工業用熱。從發動機冷卻水到廢氣，都可根據您的具體情況單獨訂製，讓各種熱源為您提供最大利益。

Power heat and cooling supply (CHPC) 熱電冷聯供 (CHPC)

Using an absorption or an adsorption chiller, CHP systems can also create cooling energy with their generated heat. This functionality could be used for air conditioning in an office building, for example. The supply of cooling energy plays an important role not only for building climate control – it can be utilized in many different areas, as well as including process cooling in manufacturing, for food refrigeration or for ambient cooling in temperature-sensitive areas (e.g. data centers). The generation of cooling energy extends the possibilities of using our CHP systems in a very cost-effective way.

使用吸收裝置或者吸收式製冷裝置，CHP系統也可利用其產生的熱量生產冷能。例如，該功能可用於辦公室的空調。冷能供應在很多不同領域都發揮著非常重要的作用，不僅可用於建築的氣候控制，而且也可用於生產製造中心的過程冷卻，如食品冷凍，或溫度敏感區域（例如數據中心）的自然冷卻。製冷拓寬了以及具成本效益的方式利用我們CHP系統的可能。



BIOGAS APPLICATION 生物氣應用

Biogas is created by the digestion or fermentation of organic materials. The basic material is often slurry or solid manure. Regenerative raw materials or waste from the food industry are generally used as co-fermentates. 50 – 70 % of the gas produced this way is composed of the high-quality fuel methane. Carbon dioxide (CO₂), oxygen, nitrogen and trace gases (such as hydrogen sulfide) are its other constituents.

A multiplicity of organic materials can be used in a biogas plant. Some systems run entirely on slurry and solid manure, while others exclusively use regenerative raw materials. Frequently, a mixture of materials is used.

An increasing number of commercial operations specialize not only in the recycling of slurry, but also the disposal of organic waste. Examples include food waste from the hotel and catering industries, wholesale markets and market gardens. The principle of a CHP system based on biogas is simple and ingenious: The biogas is used to generate power in a manner that is both economical and saves resources. The power produced can either be used to supply the operator's own requirements, or it can be fed into the public power grid (in Germany as provided for by the Renewable Energy Act).

生物氣是有機物腐化或發酵所產生的氣體。基本原料通常是漿料或固體肥料。食品行業的可再生原料或廢料通常都可用作共酵物。這種方式產生的 50-70% 的氣體都含有優質燃料甲烷。二氧化碳（CO₂），氧氣，氮氣和微量氣體（例如硫化氫）則是該氣體的其他組成成分。

生物氣工廠可使用各種各樣的有機原料。有些系統可完全使用漿料和固體肥料工作，而其他系統則只能使用可再生原料。經常使用的是這些原料的混合物。

不斷增長的商業運營不僅非常關注漿料的回收利用，而且也關注有機廢料的處置，例如酒店賓館和餐飲行業的餐廚垃圾，批發市場和蔬菜市場的食物垃圾。

以生物氣為燃料的 CHP 系統的工作原理簡單巧妙：生物氣採用既經濟又節約資源的方式發電，所產生的電力可供經營者自身需求，也可輸送公用電網中。



BIOGAS APPLICATION 生物氣應用

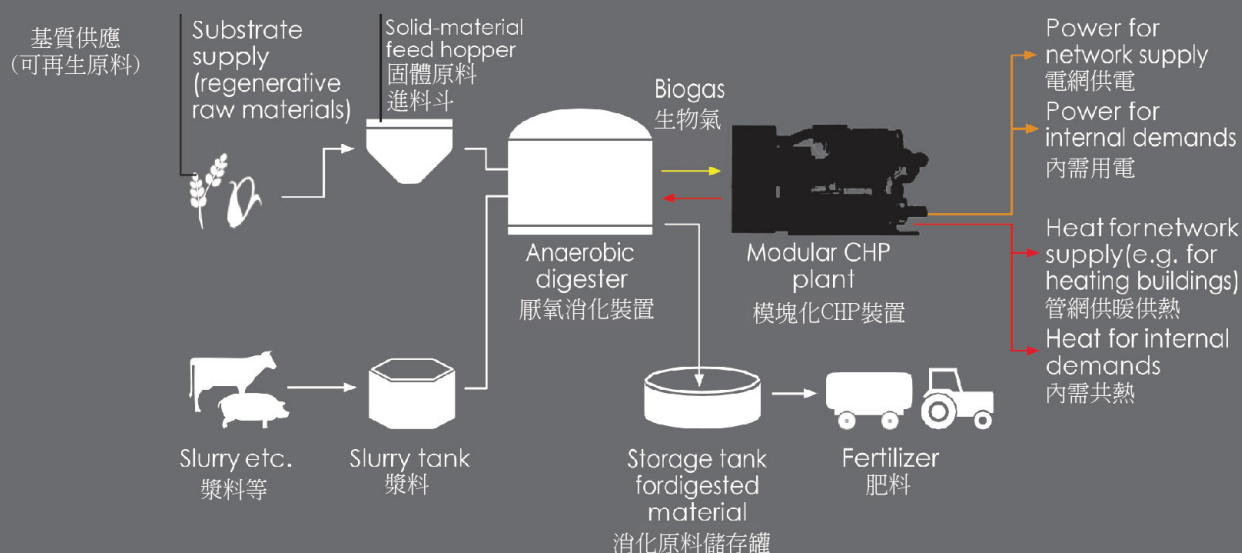
The heat generated by engine operation (as part of waste gas, coolant and oil) is used by heat exchangers to maintain the fermenters' temperature at a constant level, optimal for the fermentation process. Additional heat consumers, such as houses or groups of buildings within the farm or in neighboring residential areas, can also be supplied with heat.

With many years of technological experience and engines that have proven their reliability in the biogas segment, MTU Onsite Energy is able to integrate CHP technology into the overall process and make it profitable.

發動機運轉時產生的熱量（作為廢氣，冷卻液和潤滑油的一部分）可通過換熱器用於將發酵裝置的溫度保持在恒定水平（恆溫），最大程度地優化發酵過程。也可以為其他熱用戶供熱，例如農場或附近居民區的住宅或建築群。

憑藉多年的技術經驗，利用其可靠性在生物氣領域已得充分證明的發動機，MTU Onsite Energy 可以將 CHP 技術整合到整個工藝過程中，並從中獲益。

Biogas plant using regenerative raw materials



SEWAGE GAS APPLICATION 污水沼氣應用

Sewage gas emerges during wastewater treatment and sewage sludge digestion – which makes it a fuel available “for free” on site. Therefore, installing CHP modules in sewage plants is one of the most economical ways to utilize waste energy. The numbers speak for themselves: from 6 m³ of sewage, MTU Onsite Energy systems manage to generate on average 1 kWh of electric power and 1.2 kWh of thermal energy. The efficiently and ecologically generated electric power can either be used to supply the sewage plant itself, or it can be fed into the public power grid for compensation.

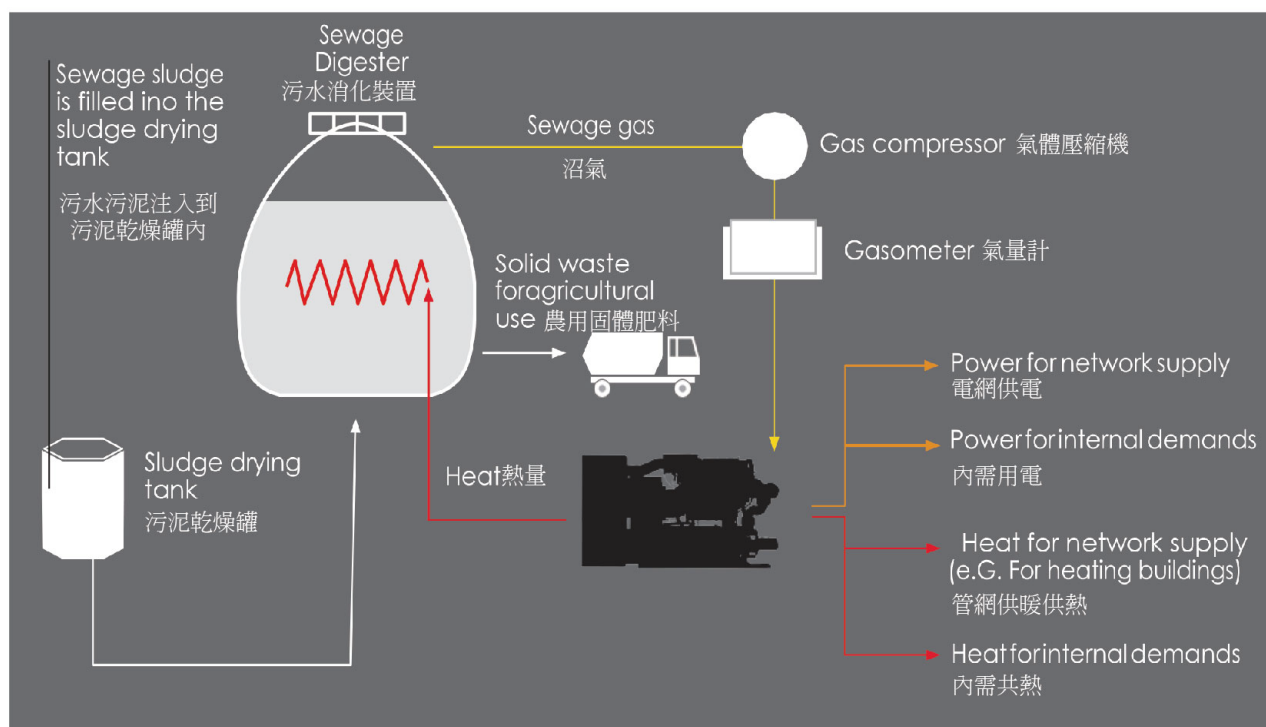
During the combustion process heat is being generated inside the gas engine, which can be utilized for heating up the sewage sludge in the digester or for heating the whole facility. In large-scale plants, excessive high-temperature heat may be available that can be used to pasteurize or dry the sewage sludge. Plants for producing power from sewage gas, sludge gas and landfill gas attract government subsidies in Germany under the terms of the Renewable Energy Act (EEG): The power generated can be supplied to the public power grid at a fixed compensation rate. There are comparable assistance programmes already in place or in the pipeline in many other countries as well.

沼氣一般在廢水處理和污泥消化時出現——這使其成為一種可現場“免費”獲取的燃料。因此，在污水處理廠安裝 CHP 模塊是一種最為經濟的利用廢料能量的方式之一。例如：利用 6m³ 的污水，MTU Onsite Energy 系統可生產平均 1KWh 的電能和 1.2KWh 的熱能。

這種以高效且生態環保方式獲得的電能可用來為污水處理廠自身供電，也可以輸送到公用電網上，獲得發電補貼。

在燃燒過程中，燃氣發動機內部會產生熱量，可以用來加熱消化裝置內部的污泥，也可以為整個工廠供熱。在大型污水處理廠，會獲得多餘的高溫熱量，可用於高溫滅菌消毒，也可用於烘乾污泥。

利用沼氣，污泥氣和填埋氣發電的工廠在德國可獲得政府補貼：所發的電力可按固定的補償標準輸送到公用電網上。在許多其他國家也已經實施或者正準備推行類似的支持計劃。



LANDFILL GAS APPLICATION 垃圾填埋氣應用

Properly monitored landfill sites represent economical energy sources. The landfill gas produced by the anaerobic decomposition of organic matter in the deposited refuse has to be captured and removed for environmental reasons. It thus constitutes a virtually free source of energy that can be utilized to generate power using the intelligent gas systems made by MTU Onsite Energy.

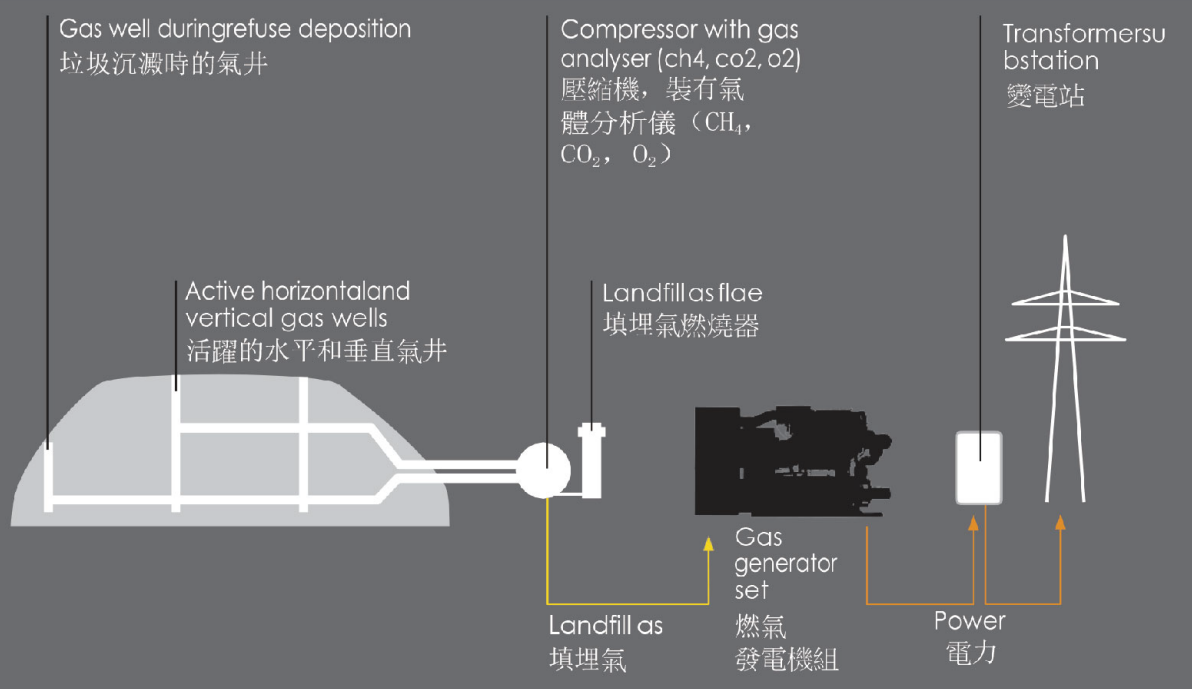
Over and above the attractive financial aspects, planned gas recycling also offers a number of other important benefits:

- Reduction of odor nuisance from landfill sites
- Prevention of dangerous smoldering fires
- Avoidance of gas migration
- Optimization of the landfill site's recultivation process

管理良好的垃圾填埋場，可成為較為經濟的能源來源。存放的垃圾中有機物質的無氧分解可產生填埋氣，因環境保護的原因，必須蒐集並除去這些填埋氣。因此這實際上就形成了一個免費的能量來源，我們可通過 MTU Onsite Energy 生產的智能燃氣系統，利用這些填埋氣發電。

除了在經濟方面的吸引力以外，氣體回收利用計劃也具有許多其他重要優點：

- 減少垃圾填埋場的惡臭污染
- 防止發生危險的陰燃火災
- 避免氣體遷移
- 可優化垃圾填埋場的復壘工藝過程。



SWITCH CABINET

開關櫃

VPK 系列

The switch cabinet of FENG CHENG select the world famous brand of Schneider and SK from ABB. Standard GGD structure, structure of sections, simple wiring, convenient operation and nice appearance, could select different brands of switches according to the customer requirement.

FENG CHENGpower® 開關櫃採用施耐德、ABB、斷路器品牌。標準GGD 櫃結構，型材構架，接線簡單，使用方便，外形美觀，可根據用戶要求選用開關品牌。

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SYNCHRONIZING CONTROL CABINET

開關櫃

VPB 系列

The Synchronizing control cabinet of FENG CHENG selects the automatic synchronizing control system, include the synchronization control module and power distribution module. Brand of Switch: Schneider and ABB. Standard GGD structure, structure of sections, short switch time, could fulfill various requirement of power situation.

FENG CHENGpower® 併機櫃採用全自動控制系統，含同步模塊，功率分配模塊。斷路器採用施耐德、ABB。標準GGD 櫃結構，型材構架，銀觸點、切換時間短，滿足各種電力場合的要求。

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ATS

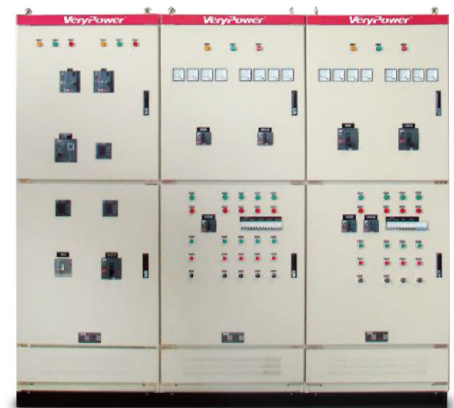
自動切換開關櫃

VPA 系列

ATS of FENG CHENG select the world famous brand of changeover switch such as Socomec from France and SK. Standard GGD structure, structure of sections, short switch time, could fulfill various requirement of power situation.

FENG CHENGpower® 自動切換開關櫃（ATS）採用法國溯高美轉換開關、愛斯凱轉換開關。標準 GGD櫃結構，型材構架，銀觸點、切換時間短；滿足各種電力場合的要求。

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DC POWER SUPPLY PANEL

直流電源屏

DC110V-36AH



High frequency DC Power supply panel of FENG CHENG use the 3rd Generation intelligent high frequency switch power module. Every functional unit is the intelligent unit with CPU which has the function of automatic fault diagnosis. Strong environment adaptiveness. All of them are digital communication and full isolated electric input-output between the units, and units to monitor.

FENG CHENGpower® 高頻開關直流電源系統採用第三代智能高頻開關電源模塊，各功能單元均為具有 CPU 的智能化單元，具有自診斷能力；單元與單元、單元與監控器之間全部是數字通訊且輸入輸出電氣全隔離，環境適應能力強。

HIGH VOLTAGE SWITCHGEAR

高壓開關櫃

KYN28-630A

FENG CHENGpower® series high voltage switchgear select the VD4 vacuum circuit breaker of ABB. compound insulation design was used in the major insulation, could fulfill the "Five-protection" requirement. Aluminum Zinc plate is selected in the Cabinet enclosure which is anti-oxidant anti-corrosion. Use modular structure which is connected by blind-riveting bolt and high strength bolt. This kind of structure has high mechanical strength and suitable for various powersituation.

FENG CHENGpower® 系列高壓開關櫃採用 ABB 公司生產的 VD4 真空斷路器，主絕緣採用複合絕緣設計，安全滿足“五防要求”。櫃體外殼選用進口敷鋁鋅版，抗氧化，抗腐蝕；採用組裝式結構，由拉鉚螺釘和高強度的螺栓連接而成，具有較高的機械強度，適用各種電力環境。



GROUNDING RESISTOR CABINET

接地電阻櫃

VP-GNR606 Ω /10A

The earth resistance cabinet of FENG CHENGpower® specially applied for the complete equipments of high voltage Generator neutral point which is high resistance ground faults.

FENG CHENGpower® 系列接地電阻櫃專用於高壓發電機中性點採用高電阻接地的成套裝置。電壓等級主要為 6kv 至 20kv。當定子發生一點接地時，可限制接地電流在很小的數值，並有效抑制電弧接地暫態過電壓。



SERVICE 服務

SERVICE BEFORE SALE 售前服務

Provide pre-sale technical support
Help to dispose the machine house and provides suggestions for installation
Help to choose genset model, capacity and function

提供售前技術支持
協助機房設計、布置，安裝建議
幫助選擇機型、容量及功能

SERVICE GUARANTEE 服務承諾

Set up the customer record, follow-up service and visit periodically
Provide the training to the operator of users periodically
Can arrange personnel to help the operation during holiday or special day
Technical support and spare parts support from the world famous manufacturers

建立用戶檔案，跟蹤服務，定期巡防
定期用戶操作人員集中培訓
節假日或特殊日可派人協助值守
世界各廠原廠技術支持及零配件支持

AFTER SERVICE 售後服務

Electric connection commission and installation of equipments
Environment protection project
Residual heat utilization project
Fire protection inspect and test
Maintenance guidance
Fault remedy and difficult problem explanation
Prompt& ample supply of spare parts, timely repair
Gensets mandatory management

設備安裝、調試及電氣連接
機房環保工程
餘熱利用工程
消防檢驗測試
用戶操作培訓
指導設備保養、維護及簡易故障排除
快速提供零配件
受委托管理設備

TRAINING SERVICE 培訓服務

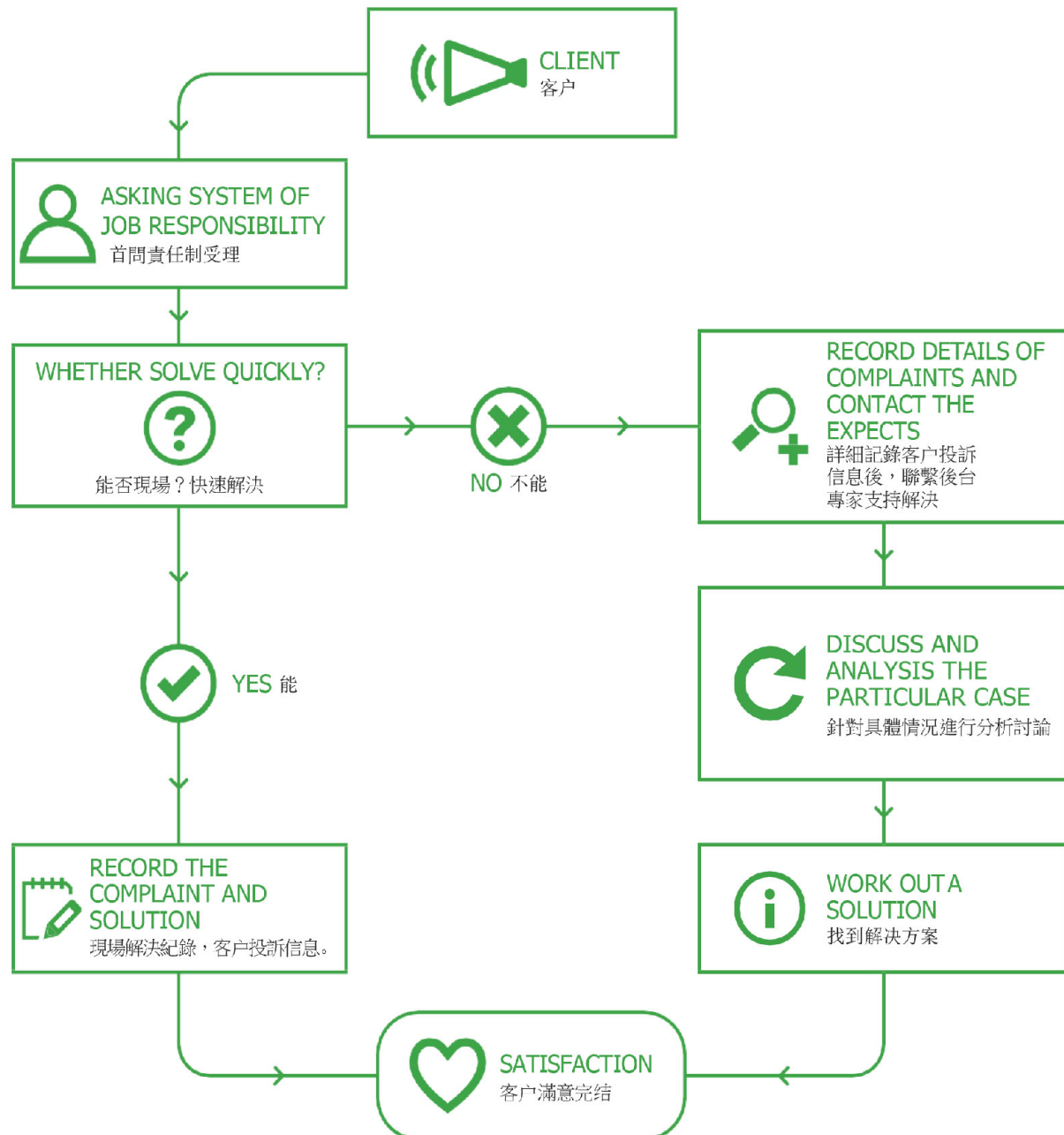
On-site training of maintenance and operation
Technique upgrade training in the factory
Guidance and training in the factory
用戶現場操作、保養培訓
工廠集中技能提升培訓
原廠指導培訓

AUXILIARY PROJECT 配套工程

Genset room design, installation, and commissioning
Environment protection and soundproof project, heat recovery project
Paralleling and synchronization (main power, genset power) project
發電機房設計,機組安裝、聯動調試
環保降噪工程,熱回收利用工程
並機併網(市電、發電)工程

SERVICE PROCESS

服務流程



Website 網址： www.feng-cheng.com.tw

Service hotline 服務熱線： 王文俊 0932-741-836 /// 公司 0962-075-749

PARTS SERVICE

零配件服務

FENG CHENGpower® 發電機組作為專業化程度非常高的設備，需要非常專業的人員進行定期維護與保養。風城 怡和企業作為專業的製造與服務商，有一支非常專業的服務隊伍。以合理的收費，代為用戶進行長期性的定期保養。 *As the special equipment with high specification degree, generating sets should be maintained by professional operators. As a professional manufacturer and service agent of generating sets, FENG CHENGpower® has a very professional service team. Provide regular termly maintenance with reasonable charges.*

Content of Maintenance

保養的組成部分

Genset management and control

設備管理和控制

Monitoring of running condition

運行環境監控

Maintenance & Repair practice

保養與維修實踐

System maintenance and management

系統的保養管理



Bebefit of preventive maintenance

預防性保養的益處

Improve the operation profit of equipments

提升設備使用利潤

Shorten maximizely the emergency stop time

最大限度縮短停機時間

HeIp to cost control

有助於成本控制

Control the service cycle

控制服務周期

Extend the life of the facility

延長設備壽命

Increase the work controllabiIity

增加工作的可控性

Increase the resale value

增加轉售價值

