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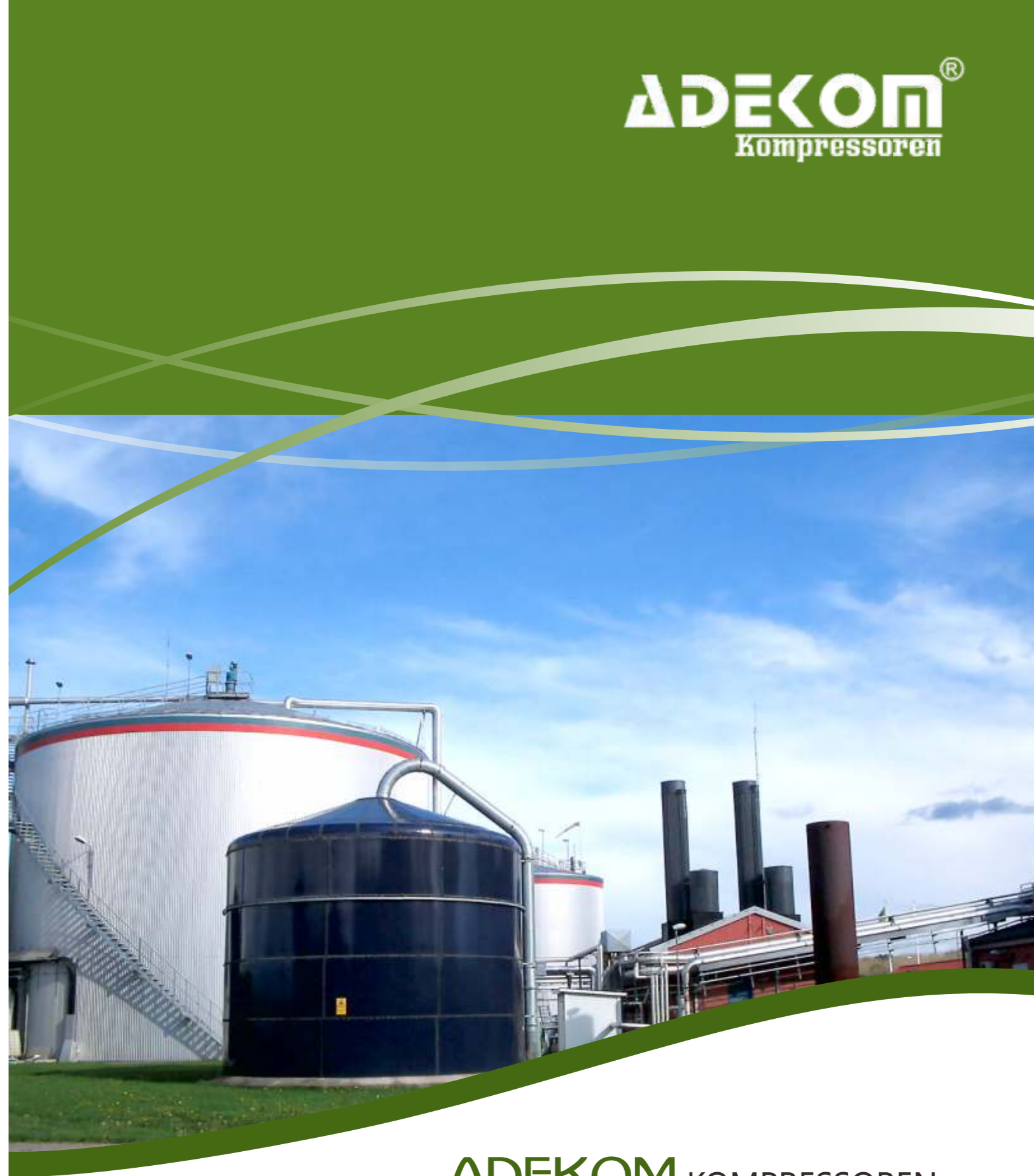
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**ADEKOM KOMPRESSOREN**  
**BIOGAS SOLUTION**

**AdeKom Biogas Screw Compressor Technology for**  
Biogas Power Generation and Biogas Upgrading to CNG Application

## COMPANY PROFILE

ADEKOM - ADVANCED AIR & GAS SOLUTION

ADEKOM (ASIA PACIFIC) LIMITED founded in the late 90' s is a specialized air/gas compressors and treatment system manufacturer with headquarter in Hong Kong. QUALITY, RELIABILITY and ENERGY EFFICIENCY have been the main objectives of serving customers all over the world.

Being a ISO9001:2015 and CE certified global supplier who is specialized in providing high performance and low operating cost compressors and treatment system for a broad range of applications, in coping with the rapid growth of China and fast developing countries, ADEKOM had established a joint venture factory named Adekom Kompressoren (Dongguan) Limited in Southern China early year 2000. This not only resulted in reducing the products delivery lead time, but also improved customer satisfaction by providing the best compressor packages in accordance with regional operating environment.

Throughout the years, ADEKOM have established business relationship with customers across all continents, such as Asian countries, Russia & CIS countries, Middle East countries, European countries, African countries and American countries.

Complete range of world class rotary screw, piston and scroll type air & gas compressors, with matching air & gas treatment system equipment, including high-pressure, oil-free and portable models are all fitted with international recognized components. Thus, this sets us apart from other manufacturers and our product quality is unrivalled in the marketplace!



## QUALITY ASSURANCE

10+ PATENTS HAVE BEEN AWARDED IN THE PAST FEW YEARS WHICH SHOWS THE MISSION OF INNOVATION IN ADEKOM. WE ARE COMMITTED TO DEVELOP HIGH END PRODUCTS CONTINUOUSLY TO MEET WITH WHATEVER APPLICATIONS OUR CUSTOMERS MAY HAVE.

- Five major product lines of Adekom are CE certified.
- High Quality China Supplier certificate issued by Canton Fair.
- Adekom Oil Free lines are SGS and TÜV certified for ISO8573-1 Class 0 standard.
- JV production facility in China is ISO9001 and ISO14001 certified.



### K-KG(G) Series Biogas Compressor Technical Description

OIL-INJECTED ROTARY SCREW GAS COMPRESSORS AND TREATMENT SYSTEMS FOR BIOGAS, LANDFILL GAS AND WET-GAS IN GENERAL

Capacity up to 3000Nm<sup>3</sup>/h

Available discharge pressures from 3.5bar(g) to 25bar(g) Nominal power from 4.0 to 400kW

ADEKOM biogas compressors equip with the most advanced and developed Italian screw biogas gasend and provide the optimal solutions for city sewage treatment plant, disposal landfill plant and the large farm to execute biogas collecting and compressing process around the world with well-developed application experience which undergoes international market tests, ushering in a new trend of environmental conservation and energy saving.

Features	Biogas Screw Compressor
Requirement of medium	Allow suction of medium containing free liquid and able to run normally
Working principle & compression ratio of a valve	Gas suction and discharge are in forced mode. Internal and external compression ratio are different in variable working condition
Cooling method of compression medium	Hydrojet inner cooling - direct cooling medium: ① Compression process closes to isothermal process; ② Large single compression ratio (≥8:1); ③ Low discharge temperature (≤95°C)
Sealing and lubrication method	Among moving parts of gasend are non-contact seal. Recycled lubrication oil yet complete with lubricating, sealing and cooling function. Since discharge temperature is controllable, even if high-compression ratio lubrication oil won't have carbon deposition.



#### STATE-OF-THE-ART BIOGAS SCREW COMPRESSOR GASEND

World renowned gas-end (gas compression pump head) is specially designed for biogas application with thousands installation worldwide. Special features include:

- Bearings (Copper free, oversized design)
- Wide suction / discharge pressure range, Suction: -0.67bar (vacuum) ~ 3.45bar.g; Discharge: 5bar.g ~ 35bar.g)
- Mechanical seal (more reliable and long life than lip seal system)
- In compliance with ATEX2014/34/EU (Zone 1,2); API 619



#### Customized biogas application valves

- Customized biogas inlet valve
- Customized temperature control valve for biogas
- Customized minimum pressure valve for biogas



#### Control / safety system

- Explosion proof junction box: Explosion proof code: ExdIIBT4/ATEX/UL Protection class: IP65
- Combustible gas detector

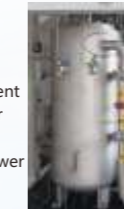


#### Heat recovery system

- Oil circuit heat recovery: about 70% power consumption of biogas compressor can be recovered by oil circuit heat recovery
- Gas circuit heat recovery: about 10-15% power consumption of biogas compressor can be recovered by gas circuit heat recovery

#### MULTI-STAGE OIL/GAS SEPARATION SYSTEM

- Specially designed for biogas application pressure vessel in compliance with CE/ASME standard as option
- Two-stage separation by cyclone effect + fine filter element
- Oil heater as option for Low Ambient Temperature environment
- Easy replacement of filter element with hydraulic fulcrum bar
- Vessel made of SS304 material to avoid corrosion
- Equipped with low oil level protection switch, if oil level is lower than pre-set value, compressor will be stopped with alarm



#### Gas/water separator

- Stainless steel gas/water separator realizes cyclone effect separation of liquid water, and discharge through automatic condensate drainer, can reduce the workload of downstream after treatment system
- Liquid level sensor detection, to ensure that only draining condensate water, not internal compressed gas



#### High quality oil filter

- Made of composite fiber, oil filter replacement can be done without machine shutdown



#### HIGH EFFICIENCY INVERTER DUTY EX-PROOF MOTOR

High efficiency, totally enclosed fan cooled (T.E.F.C.), IP55, class F inverter duty explosion proof electric motor that brings an unprecedented level of energy saving. High quality bearings are fitted for continuous trouble - free operation over the entire speed range.

- Power rating: 5.5kW-450kW
- Ex-proof code: EX DII BT4/ATEX/UL
- Starting: VSD soft starting
- Three phase winding and bearing c/w PT100



#### ADVANCED VARIABLE SPEED DRIVE

- Built-in PID functionality
- Limitation of operating time at low speed
- PTC probe management
- Auto-restart function with configurable response time
- Underload and overload detection
- Low-flow detection
- Sleep/wake function
- Power used, power-on time and motor run time
- Renowned brand like ABB/Schneider to be installed in Safe Zone
- Standard configuration: circuit breaker; input filter; output reactor



#### HIGH EFFICIENCY INLET FILTRATION SYSTEM

- Inlet air separation tank includes second-stage filtration
- Cyclone separation with 5µm inlet gas filter element
- Liquid level controller is equipped to output alarm signal when liquid level exceeds pre-set value
- Automatic drain valve will be discharged according to liquid level
- Special design drainer is able to prevent discharge of gas to environment and ambient air sucks into the system during condensate discharge



#### HIGH EFFICIENCY COOLING SYSTEM

Available cooling method: Air-cooled / Water-cooled

- Air-cooled
- Designed and built for ambient temperature from -20 to 40°C, suitable for 24/7 operation. Explosion proof axial fan is adopted. Heat transfer efficiency of special design aluminum anti-corrosion cooler is about 15% higher.
- Water-cooled

Shell and tube type stainless steel heat exchanger for versatile environment where cooling water is available.



#### RELIABLE INSTRUMENTATION FOR PROTECTION

- Suction pressure gauge
- Pressure/vacuum switch at suction
- Temperature sensor at compressor gas/oil mixture discharge
- Pressure switch at oil receiver (high pressure)
- Pressure transducer at gas discharge (to control operating pressure)
- PTC on main electric motor
- Oil pressure gauge
- Temperature gauge on final discharge pipe
- High water level switch on suction filter
- High water level switch on after cooler separator
- All components from world renowned brands for reliable, accurate and fully automatic control and monitoring



**Biogas screw compressor and treatment system equipment for Biogas Power Generation in Hong Kong Drainage Sewage Treatment Plant**

Technical data:  
Power: 7.5 kW  
Flow rate: 45Nm<sup>3</sup>/h  
Inlet pressure: 0-3 kPa  
Working pressure: 7.0 bar



**Containerized biogas screw compressor for Biogas Upgrading to CNG Project in Shandong (Sewage)**

Technical data:  
Power: 90kW  
Flow rate: 700Nm<sup>3</sup>/h x 4  
Inlet pressure: 0-4 kPa  
Working pressure: 8.0 bar



**Biogas screw compressor and treatment system equipment for Biogas Power Generation in Beijing Landfill Site**

Technical data:  
Power: 18.5 kW  
Flow rate: 150Nm<sup>3</sup>/h  
Inlet pressure: 0-2 kPa  
Working pressure: 7.0 bar



**Containerized biogas screw compressor for Biogas Upgrading to CNG Project in Hainan (Mixed Organic Waste)**

Technical data:  
Power: 132 kW  
Flow rate: 776Nm<sup>3</sup>/h  
Inlet pressure: 10-20 kPa  
Working pressure: 15.5 bar



**Containerized biogas screw compressor for Biogas Upgrading to CNG Project in Changzhou (Refuse Incineration Leachate)**

Technical data:  
Power: 110 kW  
Flow rate: 550Nm<sup>3</sup>/h  
Inlet pressure: 0-10 kPa  
Working Pressure: 16.5 bar



**Containerized biogas screw compressor for Biogas Upgrading to CNG Project in Guangxi (Solid Waste)**

Technical data:  
Power: 185 kW  
Flow rate: 1200Nm<sup>3</sup>/h  
Inlet pressure: 0-10 kPa  
Working pressure: 12.5 bar



**Bioenergy Co., Ltd. Biogas Project (Purification of Agricultural Waste) in Jiangsu Jiuyuan**

Technical data:  
Power: 160 kW  
Flow rate: 811Nm<sup>3</sup>/h x 2  
Inlet pressure: 15-25 kPa  
Working pressure: 16.0 bar



**Containerized Biogas screw compressor for Biogas Upgrading to CNG Project in Beijing (Mixed Organic Waste)**

Technical data:  
Power: 200 kW  
Flow rate: 1245Nm<sup>3</sup>/h  
Inlet pressure: 23 kPa  
Working pressure: 16.0 bar



**Containerized Biogas screw compressor for Biogas Upgrading to CNG Project in Dongguan (Food Waste)**

Technical data:  
Power: 250 kW  
Flow rate: 1730Nm<sup>3</sup>/h  
Inlet pressure: 20 kPa  
Working pressure: 12 bar



**Containerized Biogas screw compressor for Biogas Upgrading to CNG Project in Suzhou (Mixed Organic Waste)**

Technical data:  
Power: 220 kW  
Flow rate: 1445Nm<sup>3</sup>/h  
Inlet pressure: 0-5 kPa  
Working pressure: 8.0 bar



**Containerized Biogas screw compressor for Biogas Upgrading to CNG Project in Thailand (Sewage)**

Technical data:  
Power: 132 kW  
Flow rate: 1026Nm<sup>3</sup>/h  
Inlet pressure: 10 kPa  
Working pressure: 8.0 bar



**Food Waste Utilization and Harmless Treatment Project Biogas Purification CNG Project in Taiyuan**

Technical data:  
Power: 200 kW  
Flow rate: 1110Nm<sup>3</sup>/h  
Inlet pressure: 10 kPa  
Working pressure: 16.0 bar

