

JENBACHER TYPE 4

Hot & Humid countries An efficiency milestone

Based on the proven design concepts of types 3 and 6, the modern Jenbacher type 4 engines in the 800 to 1,560 kW power range are characterized by a high-power density and outstanding efficiency. The enhanced control and monitoring provide easy preventive maintenance, high reliability and availability.



Reference installations

J420 Chengdu Chang'an Landfill Gas Comprehensive Utilization Project, China

Energy source	Engine type	Electrical output	Commissioning
Landfill gas	20 x J420	29.74 MW	2017, 2018

The Chengdu Chang'an landfill gas comprehensive utilization project is one of the largest single-unit landfill gas power generation projects in China. In the first phase, completed in May 2017, 14 of Jenbacher J420 gensets, running on landfill gas, were installed for an electrical capacity of 20.82 MW. In November 2018, the second phase added six more Jenbacher J420 units, bringing the project's total installed capacity to 29.74 MW.



J420 Jaremar Group, Honduras

Energy source	Engine type	Electrical output	Commissioning
Biogas	1 x J316, 1 x J420	2.27 MW	2008, 2019

The Jaremar Group wanted to use the byproduct from its palm oil extraction plant – palm oil mill effluent (POME) – for power generation. In 2019, one Jenbacher J420 was installed at the plant to produce 1.43 MW of electrical power. Through anaerobic fermentation, the POME produces biogas, which then is captured and fed into the engine to generate power.



J420 Chok Yuen Yong Industry Co., LTD, Thailand

Energy source	Engine type	Electrical output	Thermal output	Commissioning
Biogas	5 x J420	7.1 MW	5.2 MW	2012, 2017

Five Jenbacher J420 biogas-fueled engines produce more than enough electric power to supply Chok Yuen Yong Industry Co., LTD's tapioca starch factory. The excess electricity produced by the engines – about 1,000 kW – is supplied to the public grid to further reduce the facility's power costs.



J420 Blue Planet Knit Composite Ltd. in Gazipur, Bangladesh

Energy source	Engine type	Electrical output	Commissioning
Pipeline gas/ Propane	3 x J420	4.5 MW	2020

Blue Planet Knit Composite has a composite garment manufacturing facility based in Gazipur. Three Jenbacher J420 gensets support the factory and office buildings with a total of 4,503 kW of electricity.



Technical features

Feature	Description	Advantages
Heat recovery	Flexible arrangement of heat exchanger, two stage oil plate heat exchanger on demand	- High thermal efficiency, even at high and fluctuating return temperatures
Gas dosing valve	Electronically controlled gas dosing valve with high degree of control accuracy	- Very quick response time - Rapid adjustment of air / gas ratio - Large adjustable calorific value range
Four-valve cylinder head	Enhanced swirl and channel geometry using advanced calculation and simulation methods (CFD)	- Reduced charge-exchange losses - Central spark-plug position resulting in optimal cooling and combustion conditions
Crack connecting rod	Applying a technology – tried and tested in the automotive industry – in our powerful stationary engines	- High dimensional stability and accuracy - Reduced connecting rod bearing wear - Easy to maintain

Technical data

Configuration	V 70°		
Bore (mm)	145		
Stroke (mm)	185		
Displacement / cylinder (lit)	3.06		
Speed (rpm)	1,800 / 1,200 (60 Hz) 1,500 (50 Hz)		
Mean piston speed (m/s)	7.4 (1,200 1/min) 9.3 (1,500 1/min) 11.2 (1,800 1/min)		
Scope of supply	Generator set, cogeneration system, generator set / cogeneration in container		
Applicable gas types	Natural gas, flare gas, biogas, landfill gas, sewage gas, special gases (e.g., coal mine gas, coke gas, wood gas, pyrolysis gas)		
Engine type	J412	J416	J420
No. of cylinders	12	16	20
Total displacement (lit)	36.7	48.9	61.1

Dimensions l x w x h (mm)		
Generator set	J412	5,400 x 1,800 x 2,200
	J416	6,200 x 1,800 x 2,200
	J420	7,100 x 1,900 x 2,200
Cogeneration system	J412	6,000 x 1,800 x 2,200
	J416	6,700 x 1,800 x 2,200
	J420	7,100 x 1,800 x 2,200
Container 40-foot	J412	12,200 x 3,000 x 2,700
	J416	12,200 x 3,000 x 2,700
	J420	12,200 x 3,000 x 2,900

Weights empty (kg)		
Generator set	J412	11,200
	J416	13,500
	J420	17,200
Cogeneration system	J412	11,800
	J416	14,100
	J420	17,800

Outputs and efficiencies

Natural gas		1,500 l/min 50 Hz					
NO _x ‹	Type	Pel (kW) ¹	Pth (kW) ³	Heat rate (kJ/kWhe) ²	η _{el} (%) ²	η _{th} (%)	η _{tot} (%)
500 mg/m ³ _N	J412	900	998	8,496	42.3	46.9	89.2
	J416	1,202	1,324	8,460	42.5	46.8	89.3
	J420	1,415	1,569	8,496	42.4	47.0	89.3
	J420	1,501	1,650	8,460	42.5	46.7	89.2
	J420	1,487	1,628	8,388	42.9	46.9	89.8
	J420	1,501	1,655	8,460	42.5	46.9	89.4
	J420	1,561	1,675	8,352	43.1	46.2	89.3
	J420	1,561	1,693	8,388	43.0	46.6	89.6

¹ Electrical output @ ≤ 50m above sea level and ≤ 35°C combustion air temperature

² Technical data and fuel consumption according ISO 3046

³ Total heat output @ hot water 70°C/90°C

All data according to full load and subject to technical development and modification.

Further engines versions available on request.



Contact us:
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In general, "Ready for H₂" Jenbacher units can be converted to operate on up to 100% hydrogen in the future. Details on the cost and timeline for a future conversion may vary and need to be clarified individually.

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