

# JENBACHER TYPE 6

## Hot & Humid countries Cutting-edge technology

Continuously refined based on our extensive experience, Jenbacher type 6 engines are reliable, advanced products serving the 2 to 4.5 MW power range. The 1,500 rpm engine speed provides high power density and low installation costs. The type 6 precombustion chamber enables high efficiency with low emissions. Proven design and enhanced components support a service life of 60,000 operating hours before the first major overhaul. The J624 model features the advanced 2-stage turbocharging technology, which offers high electrical efficiency combined with improved flexibility over a wide range of ambient conditions.



### Reference installations

#### J616 & J620 BMW in Regensburg and Leipzig, Germany

Energy Source	Engine type	Electrical output	Thermal output	Commissioning
Natural gas	4 x J616 1 x J620	10,700 kW 3,000 kW	9,600 kW 3,120 kW	2011 2007

The cogeneration plants installed at BMW Group\*'s factories in Regensburg and Leipzig can generate on-site power and capture and use engine waste heat to support the factories' production processes. Winter heating is obtained through a combination of the engines' waste heat and heat from existing boilers.



#### J620 Coca-Cola Hellenic, Romania

Energy Source	Engine type	Electrical output	Thermal output	Commissioning
Natural gas	2 x J620	6,082 kW	2,208 kW	2009

Since 2009, two J620 engines have been supplying the Coca-Cola Hellenic Bottling Company with energy and heat, as well as hot and chilled water for its operations. By fulfilling the facility's on-site power needs, the installed engines help reduce the company's carbon footprint and lower its overall operational costs.



#### J624 Hakha CES in Daejeon, South Korea

Energy Source	Engine type	Electrical output	Thermal output	Commissioning
Natural gas	6 x J624	25,182 kW	25,350 kW	2014

With a total of six J624 engines running on natural gas, the Hakha, Daejeon site reaches a total of 25,182 kW of electrical output while achieving total efficiency of 87%. With the installation of these Jenbacher engines, the site has become one of the largest gas engine plants in South Korea.



#### J624 2-stage turbocharged serres Vinet Greenhouse in Machecoul, France

Energy Source	Engine type	Electrical output	Thermal output	Commissioning
Natural gas	2 x J624 2-stage turbocharged	8,800 kW	8,024 kW	2011

At this greenhouse facility, two Jenbacher J624 2-stage turbocharged gas engines enable French grower Serres Vinet to generate all of the hot water and electricity required for its extensive tomato and lettuce greenhouse operations. These are the first 2-stage turbocharged gas engines in France and give Serres Vinet the flexibility to switch among the energy sources to either provide electrical energy and thermal energy as economics dictate.



# Technical features

Feature	Description	Advantages
Four-valve cylinder head	Centrally located purged pre-combustion chamber, developed using advanced calculation and simulation methods (CFD)	Reduced charge-exchange losses, highly efficient and stable combustion, optimal ignition conditions
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
Air / fuel mixture charging	Fuel gas and combustion air are mixed at low pressure before entering the turbocharger	Main gas supply with low gas pressure, mixture homogenized in the turbocharger
Pre-combustion chamber	The ignition energy of the spark plug is amplified in the pre-combustion chamber	High efficiency, lowest NOx emission values, stable and reliable combustion
Gas dosing valve	Electronically controlled gas dosing valve with high degree of control accuracy (for natural gas)	Very quick response time, rapid adjustment of air / gas ratio, large adjustable calorific value range
2-stage turbocharging	Next generation turbocharging technology concept (for J624 only)	Improved performance in terms of output and efficiency, increased flexibility regarding ambient conditions

## Technical data

Configuration	V 60°
Bore (mm)	190
Stroke (mm)	220
Displacement / cylinder (lit)	6.24
Speed (rpm)	1,500 (50 Hz) 1,500 with gearbox (60 Hz)
Mean piston speed (m/s)	11 (1,500 1/min)
Scope of supply	Generator set, cogeneration system, containerized package
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	J612 J616 J620 J624
No. of cylinders	12 16 20 24
Total displacement (lit)	74.9 99.8 124.8 149.7

	Dimensions l x w x h (mm)				
Containerized package	J612-J620	12,000/15,000 x 3,000/6,000 x 8,100			
	J624	17,000 x 6,000 x 8,400			
Generator set	J612	7,600 x 2,200 x 2,800			
	J616	8,300 x 2,200 x 2,800			
	J620	8,900 x 2,200 x 2,800			
	J624	12,800 x 2,500 x 2,900			
Cogeneration system	J612	7,600 x 2,200 x 2,800			
	J616	8,300 x 2,200 x 2,800			
	J620	8,900 x 2,200 x 2,800			
	J624	12,800 x 2,500 x 2,900			
Weights empty (kg)	J612	J616	J620	J624	
	Generator set	24,000	29,200	36,900	52,100
	Cogeneration system	24,500	29,700	37,500	52,100

Dimensions and weights are valid for 50 Hz applications

## Outputs and efficiencies

Natural gas		1,500 1/min   50 Hz					
NOx <	Type	PeI (kW) <sup>1</sup>	Pth (kW) <sup>3</sup>	Heat Rate (kJ/kWhe) <sup>2</sup>	ηel (%) <sup>1</sup>	ηth (%) <sup>2</sup>	ηTotal (%)
500 mg/m <sup>3</sup> <sub>N</sub>	J612	2,004	1,993	7,992	45.0	44.7	89.7
	J616	2,671	2,668	8,028	44.9	44.8	89.7
	J616	2,675	2,668	8,028	44.9	44.8	89.8
	J620	3,359	3,355	8,028	44.9	44.9	89.8
	J624	4,498	4,031	7,776	46.4	41.5	87.9
	J624	4,498	4,409	7,884	45.7	44.8	90.4

<sup>1</sup> Type 6 gas engine with site condition ≤ 50m above sea level and T1 ≤ 40°C

<sup>2</sup> Technical data and fuel consumption according ISO 3046

<sup>3</sup> 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.



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