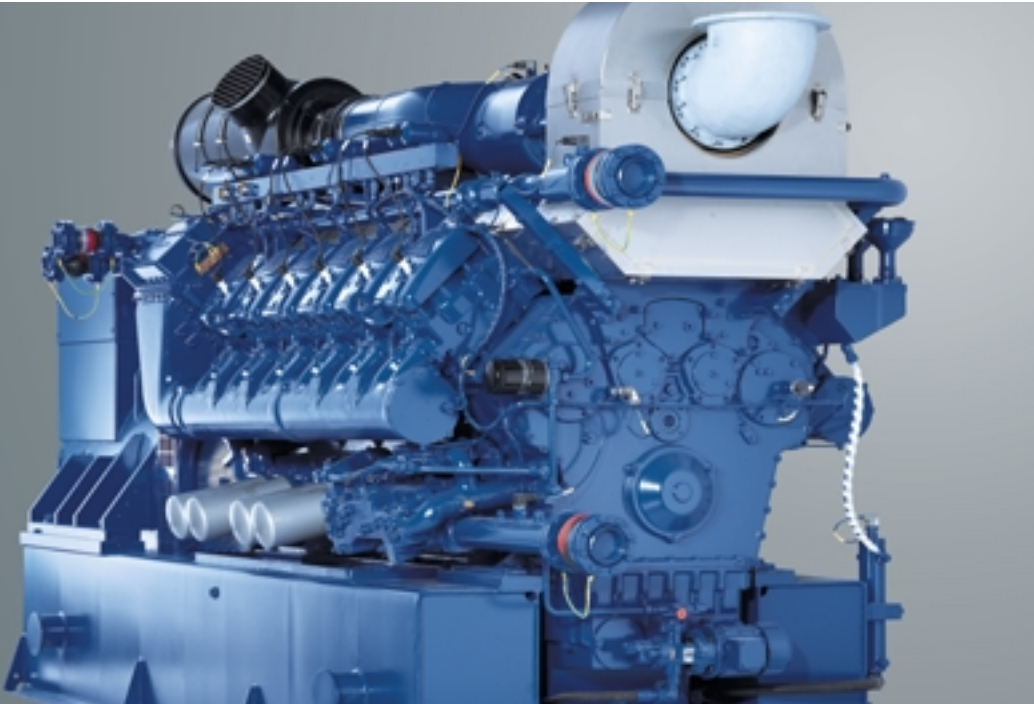


TBG 620 K. The gas engine.

970-1400 kW at 1500 min⁻¹ (50 Hz)



These are the characteristics of the TBG 620 K:

- State-of-the art 12 and 16 cylinder V-engines.
- Turbocharging and two-stage intercooling.
- Single cylinder heads with four-valve technology.
- Centrally arranged industrial spark plug with intensive plug seat cooling.
- Microprocessor-controlled high-voltage ignition system.
- One ignition coil per cylinder.
- Electronic control and monitoring of genset operation through TEM.
- Exhaust emissions controlled according to combustion chamber temperature.

Your benefits:

- ▶ Package of favourable investment and low operating costs.
- ▶ Low energy consumption thanks to maximum primary energy utilization.
- ▶ Long service intervals and ease of service guarantee additional cost savings.
- ▶ Efficient energy conversion with outstanding efficiencies.
- ▶ Intercooling permits maximum power even when using gases with low methane numbers.
- ▶ Reliable control and monitoring with high safety standards ensure optimum combustion and maximum engine protection.
- ▶ All governing, service, control and monitoring functions are easy and comfortable to operate.

► Technical data 50 Hz

$\text{NO}_x \leq 500 \text{ mg/m}_n^{3 \cdot 1)}$

Natural gas applications

Minimum methane number MN: 70
dry exhaust manifold

Engine type		TBG 620 V12 K	TBG 620 V16 K
Engine power ²⁾	kW	1050	1400
Speed	min ⁻¹	1500	1500
Mean effective pressure	bar	15.8	15.8
Exhaust temperature	approx. °C	515	523
Exhaust mass flow wet	approx. kg/h	5 499	7 332
Combustion air mass flow ²⁾	approx. kg/h	5 312	7 082
Combustion air temperature minimum/design	°C	20/25	20/25
Ventilation air flow ³⁾	approx. kg/h	26 327	32 634
Generator			
Efficiency ⁴⁾	%	97.3	97.5
Energy balance			
Electrical power ⁴⁾	kW	1022	1365
Jacket water heat	± 8 % kW	475	624
Intercooler LT heat ⁵⁾	± 8 % kW	87	112
Exhaust cooled to 120°C	± 8 % kW	678	924
Exhaust cooled to 150°C	± 8 % kW	627	855
Engine radiation heat	kW	60	72
Generator radiation heat	kW	28	35
Fuel consumption ⁶⁾	+ 5 % kW	2 545	3 393
Specific fuel consumption ⁶⁾	+ 5 % kWh/kWh	2.42	2.42
Electrical efficiency	%	40.2	40.2
Thermal efficiency	%	45.3	45.6
Total efficiency	%	85.5	85.8
System parameters			
Engine jacket water flow rate min./max.	m ³ /h	36/56	50/65
Engine K _{vs} -value ⁷⁾	m ³ /h	44	50
Intercooler coolant flow rate	m ³ /h	35	35
Intercooler K _{vs} -value ⁷⁾	m ³ /h	42.9	42.9
Engine jacket water volume	dm ³	111	151
Intercooler coolant volume	dm ³	28	28
Engine jacket water temperature max. ⁸⁾	°C	82/92	82/92
– with glycol ⁸⁾	°C	(79/89)	(79/89)
Intercooler coolant temperature ⁸⁾	°C	40/–	40/–
Exhaust backpressure min./max.	mbar	30/50	30/50
Maximum pressure loss in front of air cleaner	mbar	5	5
Gas flow pressure, fixed between (pressure variation +/- 10 %)	mbar	20...100	20...100
Starter battery 24 V, capacity required	Ah	286	420
Dry weight engine	kg	4 200	5 800
Dry weight genset	kg	8 480	10 830
Engine type		TBG 620 V12 K	TBG 620 V16 K
Bore/stroke	mm	170/195	170/195
Displacement	dm ³	53.1	70.8
Compression ratio		12 : 1	12 : 1
Mean piston speed	m/s	9.8	9.8
Lube oil content ⁹⁾	dm ³	205	265
Lube oil consumption mineral oil ¹⁰⁾	+ 20 % g/kWh	0.3	0.3

► Technical data 50 Hz

$\text{NO}_x \leq 500 \text{ mg/m}_n^3$

Sewage gas application (65 % CH₄/35 % CO₂)
Landfill gas application (50 % CH₄/27 % CO₂, rest N₂)

Minimum heating value (LHV) = 5.0 kWh/m_n³
wet exhaust manifold

Engine type		TBG 620 V12 K	TBG 620 V16 K
Engine power ²⁾	kW	970	1294
Speed	min ⁻¹	1500	1500
Mean effective pressure	bar	14.6	14.6
Exhaust temperature	approx. °C	480	482
Exhaust mass flow wet	approx. kg/h	5114	6798
Combustion air mass flow ²⁾	approx. kg/h	4535	6025
Combustion air temperature minimum/design	°C	20/25	20/25
Ventilation air flow ³⁾	approx. kg/h	20774	27040
Generator			
Efficiency ⁴⁾	%	97.3	97.5
Energy balance			
Electrical power ⁴⁾	kW	944	1262
Jacket water heat	± 8 % kW	656	873
Intercooler LT heat ⁵⁾	± 8 % kW	79	106
Exhaust cooled to 120°C	± 8 % kW	539	720
Exhaust cooled to 150°C	± 8 % kW	494	660
Engine radiation heat	kW	42	56
Generator radiation heat	kW	26	32
Fuel consumption ⁶⁾	+ 5 % kW	2454	3274
Specific fuel consumption ⁶⁾	+ 5 % kWh/kWh	2.53	2.53
Electrical efficiency	%	38.5	38.5
Thermal efficiency	%	48.7	48.7
Total efficiency	%	87.2	87.2
System parameters			
Engine jacket water flow rate min./max.	m ³ /h	36/56	50/65
Engine K _{VS} -value ⁷⁾	m ³ /h	43	49
Intercooler coolant flow rate	m ³ /h	35	35
Intercooler K _{VS} -value ⁷⁾	m ³ /h	42.9	42.9
Engine jacket water volume	dm ³	138	187
Intercooler coolant volume	dm ³	28	28
Engine jacket water temperature max. ⁸⁾	°C	78/92	78/92
– with glycol ⁸⁾	°C	(78/92)	(78/92)
Intercooler coolant temperature ⁸⁾	°C	50/–	50/–
Exhaust backpressure min./max.	mbar	30/50	30/50
Maximum pressure loss in front of air cleaner	mbar	5	5
Gas flow pressure, fixed between (pressure variation +/- 10 %)	mbar	20...100	20...100
Starter battery 24 V, capacity required	Ah	286	420
Dry weight engine	kg	4200	5800
Dry weight genset	kg	8480	10830

- Exhaust emissions with oxidizing catalyst:
 $\text{NO}_x < 0.50 \text{ g NO}_2/\text{m}_n^3$ dry exhaust gas at 5 % O₂
 $\text{CO} < 0.3 \text{ g CO}/\text{m}_n^3$ dry exhaust gas at 5 % O₂
 Formaldehyde < 0.06 g/m_n³ dry exhaust gas at 5 % O₂
- Engine power ratings and combustion air volume flows acc. to ISO 3046/1.
- Intake air flow at delta T = 15 K including combustion air.
- At 50 Hz, U = 0.4 kV, power factor = 1.
- At 40°C water inlet (50°C for biogas).
- With a tolerance of + 5 %.

7) The K_{VS}-value is the parameter for the pressure loss in the cooling system (= flowrate for 1 bar pressure loss).

8) Inlet/outlet.

9) Including pipes and heat exchangers.

10) At full load.

Data for special gas and dual gas operation on request.

The values given in this data sheet are for information purposes only and not binding.

The information given in the offer is decisive.

► Dimensions 50 Hz



Genset		Length	Width	Height
TBG 620 V12 K	mm	4700	1800	2650
TBG 620 V16 K	mm	5500	1800	2650

► Noise emissions* 50 Hz

Noise frequency band	Hz	63	125	250	500	1000	2000	4000	8000	
Engine type TBG 620 V12 K										
Exhaust noise	120 dB (A)	dB (lin)	116	121	120	118	112	111	108	107
Air-borne noise	102 dB (A)	dB (lin)	102	94	94	95	96	94	95	95
Engine type TBG 620 V16 K										
Exhaust noise	122 dB (A)	dB (lin)	119	128	120	117	116	115	112	107
Air-borne noise	104 dB (A)	dB (lin)	92	96	98	97	99	97	96	98

Exhaust noise at 1 m, $\leq 45^\circ$, ± 2.5 dB (A)

Air-borne noise at 1 m from the side, ± 1 dB (A)

* Values apply to natural gas applications, measured as noise pressure level.



We move your world.

DEUTZ AG

DEUTZ ENERGY

Carl-Benz-Straße 5

D-68167 Mannheim

Phone: + 49 (0) 6 21-3 84-86 10

Fax: + 49 (0) 6 21-3 84-86 12

Internet: www.deutz.de

eMail: deutzenergy.v@deutz.de