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TCG 2020 K

1125–1500 kW_{el} at 1500 min⁻¹ (50 Hz)

MWM
Energy. Efficiency. Environment.

Technical data 50 Hz – Natural gas applications

NO_x ≤ 500 mg /m_n³ ¹⁾

Minimum methane number MN 70
dry exhaust manifolds

Engine type		TCG 2020 V12 K	TCG 2020 V16 K
Engine power ²⁾	kW	1155	1543
Speed	min ⁻¹	1500	1500
Mean effective pressure	bar	17.4	17.4
Exhaust temperature	approx. °C	477	484
Exhaust mass flow wet	approx. kg/h	6191	8311
Combustion air mass flow ²⁾	approx. kg/h	5989	8041
Combustion air temperature minimum/design	°C	20/25	20/25
Ventilation air flow ³⁾	approx. kg/h	27954	38027

Engine parameters			
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 ⁴⁾	dm ³	205	265
Lube oil consumption mineral oil ⁵⁾	g/kWh	0.20	0.20

Generator			
Efficiency ⁶⁾	%	97.4	97.2

Energy balance				
Electrical power ⁶⁾		kW _{el}	1125	1500
Jacket water heat	± 8%	kW	587	754
Intercooler LT heat ⁷⁾	± 8%	kW	103	140
Exhaust cooled to 120 °C	± 8%	kW	685	937
Engine radiation heat		kW	39	52
Generator radiation heat		kW	30	43
Fuel consumption ⁸⁾	+ 5%	kW	2743	3658
Electrical efficiency		%	41.0	41.0
Thermal efficiency		%	46.4	46.2
Total efficiency		%	87.4	87.2

System parameters		TCG 2020 V12 K	TCG 2020 V16 K
Engine jacket water flow rate min./max.	m ³ /h	36/56	50/65
Engine K _{VS} -value ⁹⁾	m ³ /h	42	46
Intercooler coolant flow rate	m ³ /h	30	30
Intercooler K _{VS} -value ⁹⁾	m ³ /h	30	30
Engine jacket water volume	dm ³	111	151
Intercooler coolant volume	dm ³	28	28
Engine jacket water temperature max. ¹⁰⁾	°C	82/93	82/93
– with glycol ¹⁰⁾	°C	(79/90)	(79/90)
Intercooler coolant temperature ¹⁰⁾	°C	40/43	40/44.1
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 ¹¹⁾	mbar	20...200	20...200
Starter battery 24 V, capacity required	Ah	430	430

Dimensions 50 Hz Genset		TCG 2020 V12 K	TCG 2020 V16 K
Length	mm	5448	6164
Width	mm	1870	1870
Height	mm	2490	2490
Dry weight genset	kg	9490	12810

Noise emissions* 50 Hz									
Noise frequency band	Hz	63	125	250	500	1000	2000	4000	8000
Engine type TCG 2020 V12 K									
Exhaust noise 120.0 dB (A)	dB (lin)	116.0	121.0	120.0	118.0	112.0	111.0	108.0	107.0
Air-borne noise 102.0 dB (A)	dB (lin)	102.0	94.0	94.0	95.0	96.0	94.0	95.0	95.0
Engine type TCG 2020 V16 K									
Exhaust noise 122.0 dB (A)	dB (lin)	119.0	128.0	120.0	117.0	116.0	115.0	112.0	107.0
Air-borne noise 104.0 dB (A)	dB (lin)	92.0	96.0	98.0	97.0	99.0	97.0	96.0	98.0

Exhaust noise at 1 m, * 45°, ± 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.

1) Exhaust emissions with oxidizing catalyst:
NO_x < 0.50 g NO_x/m³ dry exhaust gas at 5% O₂
CO < 0.3 g CO/m³ dry exhaust gas at 5% O₂

2) Engine power ratings and combustion air volume flows acc. to ISO 3046/1

3) Intake air flow at delta T = 15 K including combustion air

4) Including pipes and heat exchangers without oil tank in the base frame.

5) This values are the mean lube oil consumption between maintenance steps which include an E 60 service. Also the procedures defined in the TPI 1111-E-06-02 and the Technical Circular TR 0199-99-2105 are to be carefully followed.

6) At 50 Hz, U = 0.4 kV, power factor = 1

7) At 40°C water inlet

8) With a tolerance of + 5%

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

10) Inlet/outlet

11) Please consider TR 0199-99-3017

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.

Your benefits

- Package of favorable 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 performance.
- Optimized for island mode and dynamic load response.
- 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.

Characteristics

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

