

Technical data 50 Hz TCG 2016 V 8K, Bio gas, 500 NOx

Power : ISO standard power ICN	Fuel gas :	Bio gas (65% CH ₄ / 35% CO ₂ or 60% CH ₄ / 32% CO ₂ , rest N ₂ or 50% CH ₄ / 27% CO ₂ , rest N ₂)
Speed : 1500 min ⁻¹		Heating value (LHV) : >= 5,0 kWh/m ³ n
Speed governor : TEM	Starter motor :	5,4 kW, 24V DC Emission NOx : <= 500,0 mg/m ³ n

Engine type

TCG 2016 V 8K wet exhaust manifold without inliner

Number of cylinder / configuration		8 V
Bore / stroke	mm	132,0 / 160,0
Displacement	dm ³	17,5
Compression ratio		12,0 : 1
Mean piston speed	m / s	8,0
Lube oil content	dm ³	70
typical mean lube oil consumption at full load	g / kWh	0,20

Engine jacket water volume/ Kvs value	dm ³ / m ³ /h	28 / 30,8	- with glycol
Engine jacket water temperature in / out max.	°C	78,0 / 90,0	(78,0 / 90,0)
Engine jacket water flow rate min. / max.	m ³ /h	16 / 30	
Engine jacket water flow rate / pressure loss	m ³ /h / bar	22,6 / 0,54	(24,3 / 0,62)
Intercooler coolant volume engine / Kvs value	dm ³ / m ³ /h	3,0 / 18,8	
Intercooler coolant temperature in / out	°C	40,0 / 42,3	(40,0 / 42,5)
Intercooler coolant flow rate / pressure loss	m ³ /h / bar	8,0 / 0,18	(8,0 / 0,18)

Generator

Generator brand / type	Marelli MJB 400 SB 4	or equal		
Voltage / frequency	V / Hz	400 / 50		
Generator efficiency (with power factor = 1,00)	%	96,4	96,1	95,2

Load

	%	100	75	50
Engine power according ISO 3046/1	kW	323	242	161
Mean effective pressure	bar	14,8	11,1	7,4
Exhaust temperature	approx. °C	359	369	376
Exhaust mass flow wet	approx. kg / h	1802	1383	949
Combustion air mass flow - ISO 3046/1	approx. kg / h	1645	1260	863

Energy balance

(tolerance for heat rejection ± 8%)

Electrical power (with power factor = 1,00)	kWel	311	233	153
Jacket water heat	kW	306	246	178
Intercooler LT heat with coolant temperature 40 °C	kW	21	15	9
Exhaust heat cooled to 150 °C	kW	116	94	66
Engine radiation heat	kW	20	20	20
Generator radiation heat	kW	12	9	8
Fuel consumption (tolerance + 5%)	kW	878	686	483
Specific fuel consumption	kWh / kWh	2,72	2,83	3,00
Mechanical efficiency	%	36,8	35,3	33,3
Electrical efficiency	%	35,4	34,0	31,7
Thermal efficiency (exhaust cooled to 150 °C)	%	48,1	49,6	50,5
Total efficiency	%	83,5	83,6	82,2

System parameters

see also DPS " Layout of Power Plants "

Ventilation air flow for	ΔT =	15 K	approx. kg / h	11276 (including combustion air)
Combustion air temperature minimum / design	Altitude	°C	20 / 25	100 m
Exhaust backpressure minimum / maximum		mbar	30 / 50	
Maximum pressure loss in front of air cleaner		mbar	5,0	
Zero-pressure gas control unit: gas flow pressure, fixed between		mbar	20 / 200	(see also TR 0199-99-3017)
Pre-pressure gas control unit: gas flow pressure, fixed between		bar	0,5 / 10	(see also TR 0199-99-3017)
Starter battery 24V, capacity required		Ah	143	
Dry weight engine		kg	1810	
Dry weight genset		kg	4110	

Noise emissions (at 1m)

TCG 2016 V 8K	Frequency band	Hz	63	125	250	500	1000	2000	4000	8000
Exhaust noise	120 dB(A) ± 2,5	dB(lin)	108	125	123	116	114	112	107	103
Air-borne noise	97 dB(A) ± 1,0	dB(lin)	85	85	91	93	87	88	92	91

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