

## Technical data 50 Hz TCG 2016 V12 C, Bio gas, 500 NOx

Power : ISO standard power ICN	Fuel gas : Bio gas (65% CH <sub>4</sub> / 35% CO <sub>2</sub> or 60% CH <sub>4</sub> / 32% CO <sub>2</sub> , rest N <sub>2</sub> or 50% CH <sub>4</sub> / 27% CO <sub>2</sub> , rest N <sub>2</sub> )									
Speed : 1500 min <sup>-1</sup>										
Speed governor : TEM EVO	Emission NOx : 500 mg/m <sup>3</sup> n (tolerance - 8%)									
<b>Engine type</b>		<b>TCG 2016 V12 C dry exhaust manifold</b>								
Number of cylinder / configuration		12 V								
Bore / stroke	mm	132,0 / 160,0								
Displacement	dm <sup>3</sup>	26,3								
Compression ratio		15,0 : 1								
Mean piston speed	m/s	8,0								
Starter motor	kWel / V DC	5,4 / 24								
Lube oil content engine / base frame (optional)	dm <sup>3</sup>	100 / 235								
typical mean lube oil consumption at full load	g/kWh	0,20								
Engine jacket water volume/ Kvs value	dm <sup>3</sup> / m <sup>3</sup> /h	43 / 37,0	- with glycol							
Engine jacket water temperature in / out max.	°C	84,0 / 91,0	( 84,0 / 91,0 )							
Engine jacket water flow rate min. / max.	m <sup>3</sup> /h	32 / 47								
Engine jacket water flow rate / pressure loss	m <sup>3</sup> /h / bar	38,6 / 1,09	( 41,5 / 1,26 )							
Intercooler coolant volume engine / Kvs value	dm <sup>3</sup> / m <sup>3</sup> /h	5,0 / 10,4								
Intercooler coolant temperature in / out	°C	50,0 / 53,4	( 50,0 / 53,6 )							
Intercooler coolant flow rate / pressure loss	m <sup>3</sup> /h / bar	10,0 / 0,92	( 10,0 / 0,92 )							
<b>Generator</b>		Marelli MJB 400 LA4 or equal								
Generator brand / type		V / Hz	400 / 50							
Voltage / frequency		min <sup>-1</sup>	1500							
Speed		%	96,70	96,60 95,80						
Generator efficiency (with power factor = 1,00)										
<b>Load</b>		%	<b>100</b>	<b>75</b> <b>50</b>						
Engine power according ISO 3046/1		kW	620	466 313						
Mean effective pressure		bar	18,9	14,2 9,5						
Exhaust temperature	approx. °C		447	476 496						
Exhaust mass flow wet	approx. kg/h		3224	2447 1681						
Combustion air mass flow - ISO 3046/1	approx. kg/h		2972	2252 1544						
<b>Energy balance</b>		(tolerance for heat rejection ± 8%)								
Electrical power (with power factor = 1,00)		kWel	<b>600</b>	<b>450</b> <b>300</b>						
Jacket water heat		kW	305	239 182						
Intercooler LT heat with coolant temperature	50 °C	kW	38	23 11						
Exhaust heat cooled to	150 °C	kW	303	247 185						
Engine radiation heat		kW	23	18 12						
Generator radiation heat		kW	20	16 13						
Fuel consumption (tolerance + 5%)		kW	1413	1091 768						
Specific fuel consumption		kWh / kWh	2,28	2,34 2,45						
Mechanical efficiency		%	43,9	42,7 40,8						
Electrical efficiency		%	42,5	41,2 39,1						
Thermal efficiency (exhaust cooled to 150 °C)		%	43,0	44,5 47,8						
Total efficiency		%	85,5	85,7 86,9						
<b>System parameters</b>										
see also MWM " Layout of Power Plants "										
Ventilation air flow for	ΔT =	15 K	approx. kg/h	15968 (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	2380							
Dry weight genset		kg	5700							
<b>Noise emissions (at 1m)</b>										
TCG 2016 V12 C	Frequency band	Hz	63	125	250	500	1000	2000	4000	8000
Exhaust noise	121 dB(A) ± 2,5	dB(lin)	106	117	122	116	116	116	110	104
Air-borne noise	99 dB(A) ± 1,0	dB(lin)	86	89	90	93	92	92	88	95

Technical changes reserved © 05 - 2009