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TCG 2032

2700 – 3600 kW | 3621 – 4828 bhp
at 900 min⁻¹ | rpm (60 Hz)

MWM
Energy. Efficiency. Environment.

Technical data 60 Hz – Natural gas applications

NO_x ≤ 500 mg /m_n³ | 1.2 g/bhph ¹⁾

Minimum methane number MN 70

Engine type		TCG 2032 V12	TCG 2032 V16
Engine power ²⁾	kW bhp	2700 3621	3600 4828
Speed	min ⁻¹ rpm	900	900
Mean effective pressure	bar psi	17.7 256.7	17.7 256.7
Exhaust temperature	approx. °C °F	472 882	476 889
Exhaust mass flow wet	approx. kg/h lb/hr	14103 31083	18760 41347
Combustion air mass flow ²⁾	approx. kg/h lb/hr	13637 30056	18141 39983
Combustion air temperature for engine with air preheater minimum/design	°C °F	10/35 50/95	10/35 50/95
Ventilation air flow ³⁾	approx. kg/h lb/hr	87871 193720	114328 252047

Engine parameters			
Bore/stroke	mm in	260/320 10.2/12.6	260/320 10.2/12.6
Displacement	dm ³ cu in	203.9 12441	271.8 16583
Compression ratio		12.0 : 1	12.0 : 1
Mean piston speed	m/s ft/s	9.6 31.50	9.6 31.50
Lube oil flow rate	m ³ /h GPM	100 400	113 498
Lube oil content ⁴⁾	dm ³ gal	1750 462.4	2200 581.2
Lube oil temperature engine inlet	°C °F	80 176	80 176
Typical mean lube oil consumption ⁵⁾	g/kWh lb/hr	0.3 1.79	0.3 1.79

Generator			
Efficiency ⁶⁾	%	97.2	97.4

Energy balance				
Electrical power ⁶⁾		kWel	2624	3510
Jacket water heat	± 8 %	kW MBtu/hr	919 3135	1208 4121
Intercooler LT heat ⁷⁾	± 8 %	kW MBtu/hr	226 771	277 945
Exhaust cooled to 120 °C 248 °F	± 8 %	kW MBtu/hr	1538 5247	2071 7066
Lube oil heat	± 8 %	kW MBtu/hr	319 1088	428 1460
Engine radiation heat		kW MBtu/hr	180 614	236 805
Generator radiation heat		kW MBtu/hr	76 259	94 321
Fuel consumption ⁸⁾	+ 5 %	kW MBtu/hr	6321 21567	8400 28661
Specific fuel consumption ⁸⁾	+ 5 %	kWh/kWh Btu/bHP-hr	2.34 5957	2.33 5937
Electrical efficiency		%	41.5	41.7
Thermal efficiency		%	43.9	44.1
Total efficiency		%	85.4	85.8

System parameters		TCG 2032 V12	TCG 2032 V16
Engine jacket water flow rate min./max.	m ³ /h GPM	80/100 352/440	105/130 462/572
Engine K _{VS} -value ⁹⁾	m ³ /h GPM	89.0 392	93.0 409
Intercooler coolant flow rate	m ³ /h GPM	55 242	65 286
Intercooler K _{VS} -value ⁹⁾	m ³ /h GPM	57.0 251	57.0 251
Engine jacket water volume	dm ³ gal	430 113.6	570 150.6
Intercooler coolant volume	dm ³ gal	51 13.5	51 13.5
Engine jacket water temperature max. ¹⁰⁾	°C °F	78/88 172/190	78/88 172/190
– with glycol ¹⁰⁾	°C °F	(78/88 172/190)	(78/88 172/190)
Intercooler coolant temperature ¹⁰⁾	°C °F	40/43.6 104/110.5	40/43.6 104/110.5
Exhaust backpressure min./max.	mbar psi	30/50 0.44/0.73	30/50 0.44/0.73
Maximum pressure loss in front of air cleaner	mbar psi	5 0.073	5 0.073
Gas flow pressure, fixed between ¹¹⁾	mbar psi	50...300 0.73...4.35	50...300 0.73...4.35
Air bottle, volume/pressure	dm ³ /bar ft ³ /psi	2000/30 71/435	2000/30 71/435

Dimensions 60 Hz Genset			
Length	mm in	7800 307.1	8900 350.4
Width	mm in	2700 106.3	2700 106.3
Height	mm in	3700 145.7	3800 149.6
Dry weight genset	kg lbs	40100 88405	47800 105380

Noise emissions* 60 Hz									
Noise frequency band	Hz	63	125	250	500	1000	2000	4000	8000
Engine type TCG 2032 V12									
Exhaust noise 122 dB (A)	dB (lin)	122	128	120	117	117	115	112	104
Air-borne noise 104 dB (A)	dB (lin)	98	97	99	98	97	96	97	95
Engine type TCG 2032 V16									
Exhaust noise 122 dB (A)	dB (lin)	129	122	119	119	116	114	112	107
Air-borne noise 106 dB (A)	dB (lin)	93	102	102	97	99	99	98	99

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:
NO_x < 0.50 g NO₂/m³ | 1.2 g/bhph 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) Without pipes and heat exchangers

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 60 Hz, U = 13.8 kV, power factor = 1
7) At 40 °C | 104 °F 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 | 14.5 psi pressure loss)

10) Inlet/outlet
11) 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.

Characteristics

State-of-the-art four-stroke Otto gas engines of V-configuration • Single cylinder heads with four-valve technology • Nonwearing high-voltage ignition system • Turbocharging and two-stage intercooling • Pearl® exhaust system located in V-space (Pulse Energy

Advanced Recovery Line) • TEM EVOLUTION SYSTEM (Total Electronic Management) for control of gas combustion as well as for monitoring and control of engine generator set with optional integration of peripheral and ancillary equipment

Your benefits

- Extremely low operating costs thanks to high efficiency and excellent specific fuel and oil consumption figures.
- Innovative repair concept with easily exchangeable cylinder unit with cylinder head, piston, connecting rod and liner enhances ease of service.
- The extremely slim engine with compact dimensions, low noise emissions and excellent smooth-running characteristics guarantee minimized installation costs.
- The combination of high power and low weight provides an exceptional power-to-weight ratio. Precise governing and control of the combustion process ensures a very high level of speed stability.
- Exhaust emission levels which comply with the most stringent European standards and represent the best available control technology world-wide.