



<b>MAN</b>		<b>Natural Gas Application</b>					
<b>C.T.M. Model</b>		<b>MNG.125</b>	<b>MNG.175</b>	<b>MNG.250</b>	<b>MNG.310</b>	<b>MNG.470</b>	<b>MNG.490</b>
<b>Engine Type</b>		<b>E0836-LE202</b>	<b>E2876-E312</b>	<b>E2876-LE302</b>	<b>E2848-LE322</b>	<b>E2842-LE312</b>	<b>E2842-LE322</b>
Engine Power	kW	110	150	210	265	400	420
Speed	rpm	1500	1500	1500	1500	1500	1500
Mean effective pressure	bar	12,81	9,36	13,10	14,50	14,59	15,32
Exhaust temperature	°C	450	590	510	440	465	410
Exhaust gas mass flow	kg/h	594	503	1101	1392	2203	2194
Displacement	dm3	6,87	12,82	12,82	14,62	21,93	21,93
Configuration		L - 6	L - 6	L - 6	V - 8	V - 12	V - 12
<b>Generator</b>							
Efficiency	%	93	93	93,4	93	94	94
<b>Energy balance</b>							
Electrical power at alternator terminals	kWe	102	140	200	250	375	390
Jacket water heat	kW +/- 8%	68	128	99	150	230	250
Intercooler HT heat	kW +/- 8%	6	na	21	26	na	72
Intercooler LT heat	kW +/- 8%	5	na	20	21	75	14
Exhaust cooled to 120°C	kW +/- 8%	64	79	143	149	237	204
Engine radiation heat	kW	12	18	16	19	30	34
Fuel consumption	kW	282	392	538	680	1028	1072
Electrical efficiency	%	36,1	35,7	37,1	36,7	36,4	36,3
Thermal efficiency	%	48,9	52,8	48,8	50,8	45,4	49
Total efficiency	%	85	88,5	85,9	87,5	81,8	85,3

<b>PERKINS</b>		<b>Natural Gas Application</b>						
<b>C.T.M. Model</b>		<b>PG.380</b>	<b>PG.470</b>	<b>PG.530</b>	<b>PG.625</b>	<b>PG.750</b>	<b>PG.1090</b>	<b>PG.1240</b>
<b>Engine Type</b>		<b>4006-23TRS1</b>	<b>4006-23TRS2</b>	<b>4008-30TRS1</b>	<b>4008-30TRS2</b>	<b>4012TESI-HC</b>	<b>4016-61 TRS1</b>	<b>4016-61 TRS2</b>
Engine Power	kW	322	393	447	526	632	912	1042
Speed	rpm	1500	1500	1500	1500	1500	1500	1500
Mean effective pressure	bar	11,24	13,7	11,70	13,70	11	11,93	13,64
Exhaust temperature	°C	495	485	490	485	406	482	468
Exhaust gas flow	kg/h	1838	2168	2538	2961	3615	5019	5781
Configuration		L - 6	L - 6	L - 8	L - 8	V - 12	V - 16	V - 16
Displacement	dm3	22,92	22,92	30,56	30,56	45,84	61,12	61,12
<b>Generator</b>								
Efficiency	%	95,4	95,4	95	95	95	95,3	96
<b>Energy balance</b>								
Electrical power	kWe	307	375	425	500	600	870	1000
Jacket water heat	kW +/- 8%	152	162	189	211	458	487	445
Intercooler LT heat	kW +/- 8%	38	57	67	90	85	134	180
Exhaust cooled to 120°C	kW +/- 8%	263	311	350	398	338	539	646
Engine radiation heat	kW	45	55	66	73	75	95	114
Fuel consumption	kW	820	978	1119	1298	1700	2288	2584
Electrical efficiency	%	37,4	38,3	37,9	38,5	37,2	39,8	40,3
Thermal efficiency	%	50,6	48,3	48,1	46,9	51,8	50,7	49,1
Total efficiency	%	88	86,6	86	85,4	89	90,5	89,4

**WAUKESHA****Natural Gas Application**

C.T.M. Model		WG.320	WG.335	WG.430	WG.450	WG.650
<b>Engine Type</b>		<b>F18-GSID</b>	<b>F18-GLD</b>	<b>H24-GSID</b>	<b>H24-GLD</b>	<b>L36-GSID</b>
Engine Power	kW	275	290	365	385	550
Speed	rpm	1500	1500	1500	1500	1500
Mean effective pressure	bar	12,14	12,76	12,14	12,76	12,14
Exhaust temperature	°C	581	426	580	432	579
Exhaust gas flow	kg/h	1037	1539	1377	2049	2052
Displacement	liters	18	18	24	24	35,9
Configuration		L - 6	L - 6	L - 8	L - 8	V - 12
<b>Generator</b>						
Efficiency	%	93	93	94	94	94
<b>Energy balance</b>						
Electrical power	kW	255	270	343	361	517
Jacket water heat + lube oil heat	kW +/- 8%	270	221	365	295	549
Intercooler LT heat	kW +/- 8%	15	44	20	54	30
Exhaust cooled to 120°C	kW +/- 8%	160	149	212	202	315
Engine radiation heat	kW	29	17	33	21	39
Fuel consumption	kW	776	765	1031	1019	1535
Electrical efficiency	%	33,7	36,2	34,1	36,3	34,5
Thermal efficiency	%	55,4	48,3	55,9	48,7	56,2
Total efficiency	%	89,1	84,5	90	85	90,7

**WAUKESHA****Natural Gas Application**

C.T.M. Model		WG.680	WG.870	WG.860	WG.1240	WG.2640	WG.3980
<b>Engine Type</b>		<b>L36-GLD</b>	<b>P48-GSID</b>	<b>P48-GLD</b>	<b>APG-1000</b>	<b>APG-2000</b>	<b>APG - 3000</b>
Engine Power	kW	575	730	727	1038	2200	3300
Speed	rpm	1500	1500	1500	1500	1500	1500
Mean effective pressure	bar	12,76	12,14	12,14	17,37	16,1	16,1
Exhaust temperature	°C	427	578	408	395	414	409
Exhaust gas flow	kg/h	3074	2728	3960	5450	13734	21132
Displacement	liters	35,9	47,9	47,9	47,9	109,5	164,2
Configuration		V - 12	V - 16	V - 16	V - 16	V - 12	V - 18
<b>Generator</b>							
Efficiency	%	94,7	95	95	96,5	97,3	97,5
<b>Energy balance</b>							
Electrical power	kW	544	693	690	1001	2140	3217
Jacket water heat + lube oil heat	kW +/- 8%	442	733	600	602	942	1467
Intercooler LT heat	kW +/- 8%	87	39	124	76	205	259
Exhaust cooled to 120°C	kW +/- 8%	299	423	360	459	1224	1846
Engine radiation heat	kW	31	45	21	80	94	125
Fuel consumption	kW	1528	2041	1982	2461	5304	7955
Electrical efficiency	%	35,6	33,9	34,8	41,7	41,4	41,4
Thermal efficiency	%	48,4	56,6	48,4	43,1	40,8	41,6
Total efficiency	%	84	90,5	83,2	84,8	82,2	83