et355 EG MAN (500 NOx)
Natural gas CHP
Technical data sheet

Basic Data				
Power, electrical [5]	355			kW
Total thermal output [2]	426			kW
Mains	400			V
frequency	50			Hz
Power control range in mains parallel operation	50-100			%
Markings / Certificates / Tests	CE / VDE-AR-N 4110			
Performance data				
Load	100	75	50	%
Energy consumption [1]	889,0	681,0	471,0	kW
Gas consumption / Hi = 10.00 kWh/Nm³ [1][6]	88,9	68,1	47,1	Nm³/h
Power, electrical [1]	355,0	266,3	177,5	kW
Power, thermal total [1][2]	426,0	337,0	240,0	kW
Power, thermal engine [1][2]	211,0	167,0	121,0	kW
Power, thermal exhaust gas 120°C [1][2]	215,0	170,0	119,0	kW
Efficiency, electrical [1]	39,93	39,10	37,69	%
Efficiency, thermal [1][2]	47,92	49,49	50,96	%
Efficiency, total [1][2]	87,85	88,58	88,64	%
Power to heat ratio [1][2]	0,83	0,79	0,74	
Max. own consumption, electrical [12]	11,9			kW
Gas engine				
Manufacturer	MAN			
Type	E3268 LE212			
Design / number of cylinders	V 8			
Displacement	17,19			l
Combustion method	1,63			λ
Rated speed, min⁻¹	1500			rpm
Engine oil sump capacity, maximum	95			l
Generator				
Manufacturer	Leroy Somer			
Type	LSA 49.3 S4			
Version	synchronous / air-cooled			
Generator nominal voltage (± 10 %)	400			V
Active power (P)	355			kW
cos phi	1,00	0,95	0,90	φ
Apparent power (S)	355,0	373,7	394,4	kVA
Generator rated current	513,0	540,0	570,0	A
Short-circuit current Ik "3	7,31			kA
Insulation / heating	H / F			
Bearing	2 bearings			

Fuel supply		
Gas type	natural gas	
Gas control line	According to DIN	
Gas connection	DN 50 (2")	
Gas flow pressure (input gas control line)	20 - 100	mbar
Fuel mass flow at 100% load [1]	109,0	kg/h
Fuel mass flow rate at 100% load [1] [6]	88,9	Nm³/h
Minimum methane number	> 80	
Air supply		
Combustion air mass flow rate	1.777	kg/h
Combustion air flow rate (25°C, 1013 mbar)	1.501	m³/h
Air flow rate for cooling, supply air	12.425	m³/h
Air flow rate for cooling, exhaust air	10.924	m³/h
Supply air temperature	25	°C
Exhaust gas		
Connection	DN 200	
Exhaust gas temperature at motor outlet [3]	474	°C
Exhaust gas temperature at outlet Exhaust gas heat exchanger	120	°C
Max. permissible back pressure	40	mbar
Exhaust gas mass flow, dry [6]	1.476	Nm³/h
Mass flow, humid	1.846	kg/h
Hydraulic integration		
Flow/return connections	DN 65 (2 1/2")	
Standard flow temperature	90	°C
Standard return temperature	70	°C
Standard flow rate	18,3	m³/h
Standard heating operating pressure	6,0	bar
Dimensions / Weight Standard module		
Dimension unit (LxWxH)	4.500x1.450x2.200	mm
Weight of unit (filled)	5.450	kg
Dimension switch cabinet (LxWxH)	2.000x500x2.000	mm
Weight of switch cabinet	200	kg
Recommended concrete strength	C20/25	
Payload, qk	3,5	kN/m²
Sound		
Aggregate (without/with sound hood) in 10 m [9] [10]	90 / 57	dB(A)
Exhaust chimney (with standard silencer) in 10 m [9] [10]	65	dB(A)
Emission values		
without catalytic converter [4] [6]		
NOx	≤ 500	mg/Nm³
CO	≤ 600	mg/Nm³
HCHO	≤ 60	mg/Nm³
with catalyst [4] [6] [11]		
NOx	≤ 500	mg/Nm³
CO	≤ 300	mg/Nm³
HCHO	≤ 20	mg/Nm³
Protection class		
Protection class unit	IP 23	
Protection class control cabinet	IP 54	

Available options (selection)	
Sound enclosure	✔
Standard container / Special container	✔
Lube oil tank system	✔
Lube oil extension (circulating tank)	✔
Island / mains replacement operation	✔
Gas cleaning, activated carbon filter	✔
Gas compressor	✔
Exhaust silencer	✔
Emergency cooler	✔
Gas warning system	✔
Anti-knock control	✔
Condensing heat exchanger	✔
VPN router LAN / mobile radio	✔
Gas meter (calibrated)	✔
Heat meter (calibrated)	✔
Neutralisation system	✔
Data interfaces	
Ethernet IP	✔
Modbus TCP	✔
Modbus RTU	✔
Profinet IO	✔
Profibus DP	✔
Installation, assembly, commissioning	✔

Standard reference conditions according to DIN ISO 3046-1:
Air pressure 1,013 mbar
Air temperature 25 °C
Relative humidity 30

Performance reduction:
For site conditions with regard to geodetic installation altitude >300m and/or intake air temperatures >25°C the power reduction must be determined in accordance with the "Technical Regulations - Chapter on Power Reductions" of enertec Kraftwerke GmbH. be determined.

(1) Performance conditions according to DIN ISO 3046-1

Tolerance for the specific fuel consumption is + 5% at nominal load operation, efficiency data apply to an engine in new condition. new condition. The decrease in efficiency over the running time is not defined as a value, but can be reduced by observing the maintenance instructions.

(2) Tolerance on the available heat output is ± 8% at nominal load operation.

(3) Tolerance on the flue gas temperature is ± 8%.

(4) Based on 5% residual oxygen content in the flue gas

(5) Available nominal active power at the generator terminals at Cos j 1.0

(6) Volume specification based on standard condition - temperature 0°C and air pressure 1013 mbar

(7) Total sound power level at full engine load according to DIN EN ISO 3746

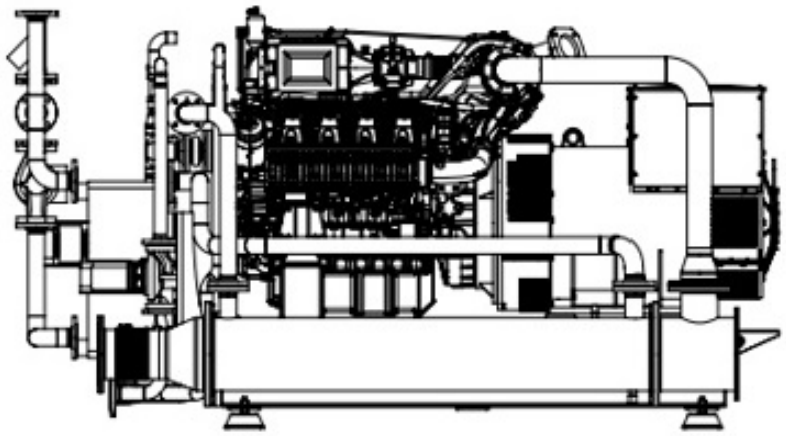
(8) Mean sound pressure level at a distance of 1 m under free field conditions according to DIN 45635

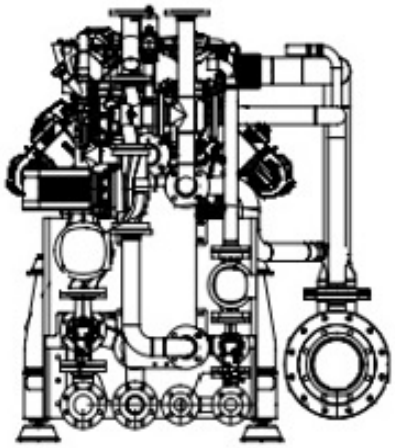
(9) Standard deviation according to DIN EN ISO 3746 (comparison 4 dB)

(10) Total sound power level at full engine load according to DIN 45635-11

(11) With corresponding configuration of catalytic converter

(12) Power requirements for cooling water pump, fan, battery charger, control transformer





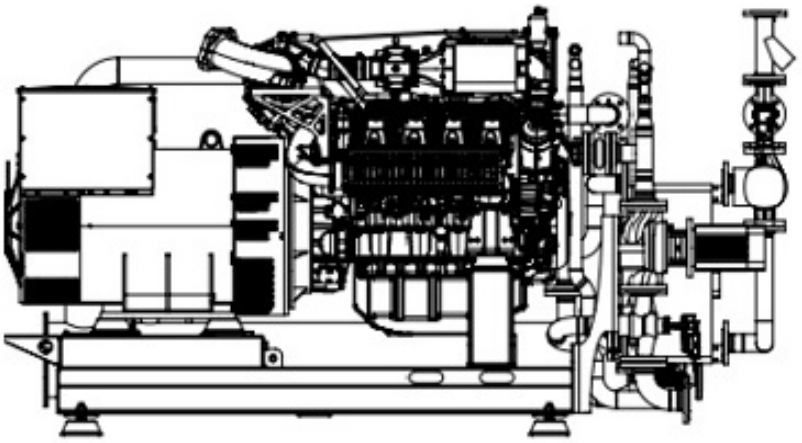


Illustration exemplary.

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