



MIF MP 3000 M Natural gas genset 2536 kW Continues Power

MIF PLUS INTERNATIONAL
DANISMANLIK HIZMETLERI A.S.
KAVAKLI MAH. YEŞİLYURT CAD. NO:15/2,
IC KAPI NO: 11, BEYLİKDÜZÜ / İSTANBUL

Cogenerating unit model

Electric power @ cos phi 1.0
Thermal power on the output
Power input in fuel
Electric power efficiency (Note: BAS1)
Thermal power efficiency (Note: BAS2)
Total efficiency
Engine cooling warter temperature inlet / outlet

MP 3000 M - CU

2536 kW
2818 kW
5985 kW
42,4%
47,1%
89.5%
78 / 92 °C

Energy balance (Note: BAL0)

Electric load
Output electric power (Note: BAL1)
Power input in fuel (Note: BAL2)
Thermal output total (Note: BAL3)
Thermal output engine (Note: BAL3)
Exhaust temperature at engine outlet (Note: BAL4)
Exhaust heat (Outlet temperature 120°C) (Note: BAL3)
Thermal output mixture cooler (Note: BAL3)
Engine power ISO 3046-1
Generator efficiency at power factor = 1
Electrical efficiency (Note: BAL2)
Thermal efficiency (Note: BAL2)
Total efficiency

100 %
2536 kW
5985 kW
2818 kW
1512 kW
423 °C
1306 kW
169 kW
2600 kW
97,5 %
42,4 %
47,1 %
89,5 %

Electric load

Output electric power (Note: BAL1)
Power input in fuel (Note: BAL2)
Thermal output total (Note: BAL3)
Thermal output engine (Note: BAL3)
Exhaust temperature at engine outlet (Note: BAL4)
Exhaust heat (Outlet temperature 120°C) (Note: BAL3)
Thermal output mixture cooler (Note: BAL3)
Engine power ISO 3046-1
Generator efficiency at power factor = 1
Electrical efficiency (Note: BAL2)
Thermal efficiency (Note: BAL2)
Total efficiency

75 %
1902 kW
4562 kW
2202 kW
1113 kW
457 °C
1089 kW
95 kW
1952 kW
97,4 %
41,7 %
48,3 %
90,0 %

Electric load

Output electric power (Note: BAL1)
Power input in fuel (Note: BAL2)
Thermal output total (Note: BAL3)
Thermal output engine (Note: BAL3)
Exhaust temperature at engine outlet (Note: BAL4)
Exhaust heat (Outlet temperature 120°C) (Note: BAL3)
Thermal output mixture cooler (Note: BAL3)
Engine power ISO 3046-1
Generator efficiency at power factor = 1
Electrical efficiency (Note: BAL2)
Thermal efficiency (Note: BAL2)
Total efficiency

50 %
1268 kW
3144 kW
1572 kW
758 kW
493 °C
814 kW
49 kW
1308 kW
96,9 %
40,3 %
50,0 %
90,3 %



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Engine model
Nominal power
Intake
Speed governor
Cylinders
Bore
Stroke
Displacement
Compression ratio
Mean piston speed
BMEP (nominal speed)
Lube oil consumption (Note: ENG1)
First filling quantity lube oil / refilling amount lube oil
Battery voltage
Starter
Battery

Generator
Output voltage
Frequency
Rating power (Note: GEN1)
Insulation class / temperature rise class
Winding pitch
Cylinders
Protection degree
Power factor (cap./ind.) (Note: GEN2)
Voltage regulation tolerance
Frequency tolerance

Fuel requirements and gas line (Note: GAS1)
Type
Min. methane number
Range of heating value: design
Nom. size / gas press. min. - max. (at gas trace inlet)

Ventilation and combustion air
Air flow (Note: AIR1)
Maximum air inlet temperature

Secondary system (heating water system) (Note: SEC1)
Thermal output
Temperatures Inlet/Outlet
Medium flow
Max. pressure loss in the system (Note: SEC2)
Coolant medium (Note: SEC3)
Coolant composition water/glycol
Max. pressure in system

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MTU 20V4000L64FNER
2600 kW
turbocharged with intercooler
electronic
20V
170 mm
210 mm
95,33 dm ³
12,5
10,5 m/s
21,8 bar
0,45 dm ³ /hod
478/450 dm ³
24 V
2 x 9 kW
4 x 215 Ah

10500 V
50 Hz
3555 kVA
F/F
electronic
2/3
IP23
0,8/0,95
±10 %
±5 %

Natural gas CH ₄ > 95 Vol. %
80
10,0 - 10,5 kWh/Nm ³
DN100 / 172 - 250 mbar

55000 m ³ /h
35°C

2286 kW
80 / 95 °C
136 m ³ /h
64 kPa
Ethylen glycol
70/30
6 bar



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Cogenerating unit model

Emergency cooling system

Position

Thermal output

Temperatures Inlet/Outlet

Coolant composition water/glycol

Coolant medium (Note: SEC2)

Max. pressure in system

LT system (low temperature mixture cooling system)

Thermal output

Temperatures Inlet/Outlet

Medium flow

Coolant medium (Note: LT1)

Coolant composition water/glycol

Operational pressure in system

Max. pressure in system

Exhaust system (Note: EXH1)

Exhaust gas volume flow, wet

Exhaust gas mass flow, wet

Exhaust temperature after turbocharger

Exhaust temperature at outlet

Exhaust emmissions (Note: EMI1)

NO_x

CO

HCHO

Noise level (Note: NOI1)

Noise pressure level at 10m from container

Exhaust gas noise at 1m from exhaust outlet

Air ducts inlet/outlet at distance 1m

Mechanical and installation parameters

Container dimensions (L x W x H)

Height of exhaust outlet (Note: DIM1)

Expected weight

Installation conditions and tolerances

Atmospheric pressure

Air temperature

Relative air humidity

Electrical power tolerance

Thermal power tolerance

Specific fuel consumption tolerance

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Integrated in secondary system

3050 kW

95 / 76,5°C

70/30

Ethylen glycol

6 bar

169 kW

60 / 63,6 °C

44 m³/h

Ethylen glycol

65/35

2 bar

6 bar

10704 Nm³/h

13612 kg/h

423 °C

120 °C

@ 15% O₂

<95 mg/Nm³

<113 mg/Nm³

<49 mg/Nm³

70 dB

75 dB

85/85 dB

15400 x 3000 x 3300 mm

12 000 mm

TBD

100 kPa

25 %

30 %

± 3%

± 8%

± 5%



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NOTES:

- BAS1: According to ISO 3046 (+ 5 % tolerance), using reference fuel used at nominal voltage, power factor = 1 and nominal frequency
- BAS2: Without LT system
- BAL0: Calculations not represent exact installation site. Check secondary system calculation
- BAL1: Generator power at nominal voltage, frequency, cos phi = 1.
- BAL2: According to ISO 3046 (+ 5 % tolerance), using reference fuel used at nominal voltage, power factor = 1 and nominal frequency
- BAL3: Thermal output at layout temperature
- BAL4: Measured at turbacharger outlet
- ENG1: Ref. Value at nominal load (without amount of oil exchange), oil density set to 860g/l
- GEN1: Max. 1000m height, max. 40°C intake temperature
- GEN2: At nominal power of genset
- GAS1: Deviations from the layout parameters respectively the reference fuel can have influence on the obtained efficiency and exhaust emissions. Functional capability
- AIR1: At air inlet temperature 35°C and 101,3 kPa
- SEC1: Calculated datas represents exacts requirements of instalation site
- SEC2: Pressure loss in system outside of CHP unit (in case of higher value it is necessary to redesign pump)
- SEC3: It is strictly recommended to use nonsilicate and nonfosfate coolant medium
- LT1: It is strictly recommended to use nonsilicate and nonfosfate coolant medium
- EXH1: Normal cubic meter at 1013 mbar and T = 273 K, Values refered on 100% load
- EMI1: Emission values during grid parallel operation, Deviations from the layout parameters respectively the reference fuel can have influence on the obtained efficiency and exhaust emissions
- NOI1: Measured at free installation site, according to ISO 8528-10. (Tolerance +5dB)
- DIM1: Measured from 0 point of container

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