MP CHP 50 NG

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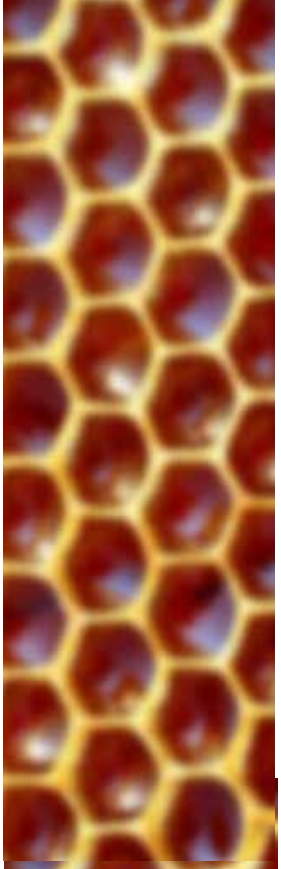

TECHNICAL DATASHEET – MP CHP 50 NG

GENERAL DESCRIPTION

- Fuel Type:	Natural Gas
- Electrical Output:	50 kWe
- Heat Output:	@90°C 79 kWth
- Fuel Input LHV- thermal:	146 kWh/h
- Fuel Input – natural gas:	15,4 Nm^3/h
- Min Gas Pressure mbar:	20
- AFR ratio:	$\lambda = 1$
- Electrical efficiency:	34,91 %
- Thermal efficiency:	54,28 %
-Total efficiency:	89,19 %

GAS ENGINE:

- Producer:	MAN Nutzfahrzeuge
-Type:	E 0834 E 302
- Combustion Cycle:	4 stroke spark ignition
- Cylinders:	4 in line
- Speed:	1500
- Aspiration:	Natural : N/A
- Acoustic Enclosure:	75 dBA @ 1m std. (internal)

GENERATOR:

- Producer:	Leroy Somer
- Model:	LSA 44.3 S 3 --
Type:Synchronous	
- Generator Capacity:	73 kVA
- Frequency:	50Hz
- Voltage:	400 V
- Full Load Current:	71 A
- Efficiency:	94.1%

HEAT RECOVERY SYSTEM (Integral to Unit):

- Fully closed primary water circuit
- Exhaust gas heat exchanger in primary circuit
- PHE between primary & secondary circuits
- Primary water pump integral

CONTROL & PROTECTION:

- On board computer control, protection and monitoring
- Engine stop/start, synchronising, modulation
- Mechanical, electrical and thermal protection
- 70+ parameters monitored, historical data recorded
- 2 way communication between unit and Control Center

MP CHP 70 NG

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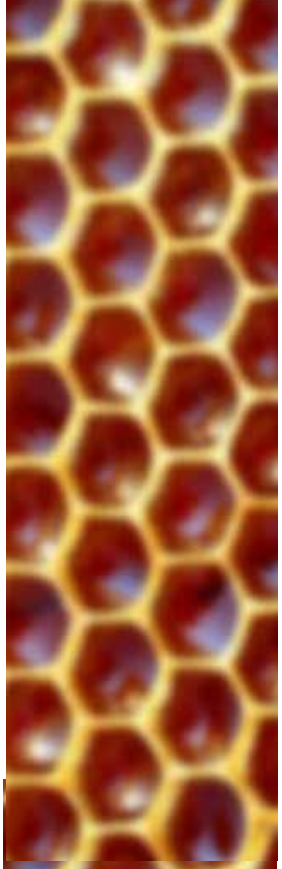

TECHNICAL DATASHEET – MP CHP 70 NG

GENERAL DESCRIPTION

- Fuel Type:	Natural Gas
- Electrical Output:	71 kWe
- Heat Output:	@90°C 109 kWth
- Fuel Input LHV- thermal:	201 kWh/h
- Fuel Input – natural gas:	21,2 Nm^3/h
- Min Gas Pressure mbar:	20
- AFR:	$\lambda = 1$
- Electrical efficiency:	35,44 %
- Thermal efficiency:	54,23 %
- Total efficiency:	89,67 %

GAS ENGINE:

- Producer:	MAN Nutzfahrzeuge
-Type:	E 0836 E 302
- Combustion Cycle:	4 stroke spark ignition
- Cylinders:	6 in line
- Speed:	1500
- Aspiration:	Natural - Intercooler: N/A
- Acoustic Enclosure:	75 dBA @ 1m std. (internal)

GENERATOR:

- Producer:	Leroy Somer
- Model:	LSA 44.3 M 6
Type:Synchronous	
- Generator Capacity:	114 kVA
- Frequency:	50Hz
- Voltage:	400 V
- Full Load Current:	127 A
- Efficiency:	95.0%

HEAT RECOVERY SYSTEM (Integral to Unit):

- Fully closed primary water circuit
- Exhaust gas heat exchanger in primary circuit
- PHE between primary & secondary circuits
- Primary water pump integral

CONTROL & PROTECTION:

- On board computer control, protection and monitoring
- Engine stop/start, synchronising, modulation
- Mechanical, electrical and thermal protection
- 70+ parameters monitored, historical data recorded
- 2 way communication between unit and Control Center

MP CHP 130 NG

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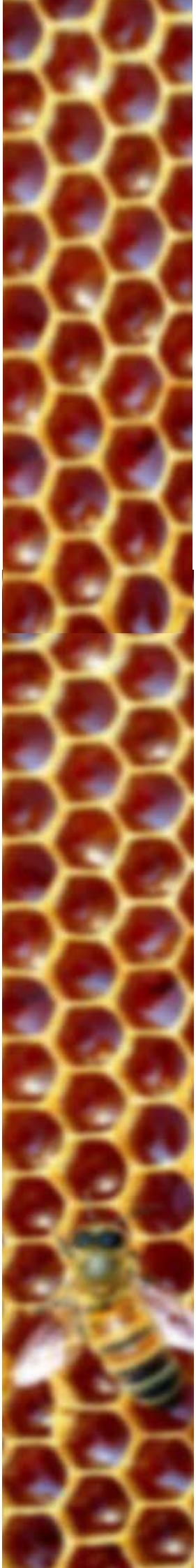

TECHNICAL DATASHEET – MP CHP 130 NG

GENERAL DESCRIPTION

- Fuel Type:	Natural Gas
- Electrical Output:	132 kWe
- Heat Output:	@90°C 193 kWth
- Fuel Input LHV- thermal:	356 kWh/h
- Fuel Input – natural gas:	37,6 Nm^3/h
-AFR:	$\lambda = 1$
- Electrical efficiency:	37,30 %
-Thermal efficiency:	54,18 %
-Total efficiency:	91,48 %

GAS ENGINE:

- Producer:	MAN Nutzfahrzeuge
-Type:	E 2676 E 302
- Combustion Cycle:	4 stroke spark ignition
- Cylinders:	6 in line
- Speed:	1500
- Aspiration:	Natural - N/A
- Acoustic Enclosure:	75 dBA @ 1m std. (internal)

GENERATOR:

- Producer:	Leroy Somer
- Model:	LSA 46.3 S 3
Type:Synchronous	
- Generator Capacity:	182 kVA
- Frequency:	50Hz
- Voltage:	400 V
- Full Load Current:	191 A
- Efficiency:	94.9%

HEAT RECOVERY SYSTEM (Integral to Unit):

- Fully closed primary water circuit
- Exhaust gas heat exchanger in primary circuit
- PHE between primary & secondary circuits
- Primary water pump integral

CONTROL & PROTECTION:

- On board computer control, protection and monitoring
- Engine stop/start, synchronising, modulation
- Mechanical, electrical and thermal protection
- 70+ parameters monitored, historical data recorded
- 2 way communication between unit and Control Center

MP CPHP 210 NG

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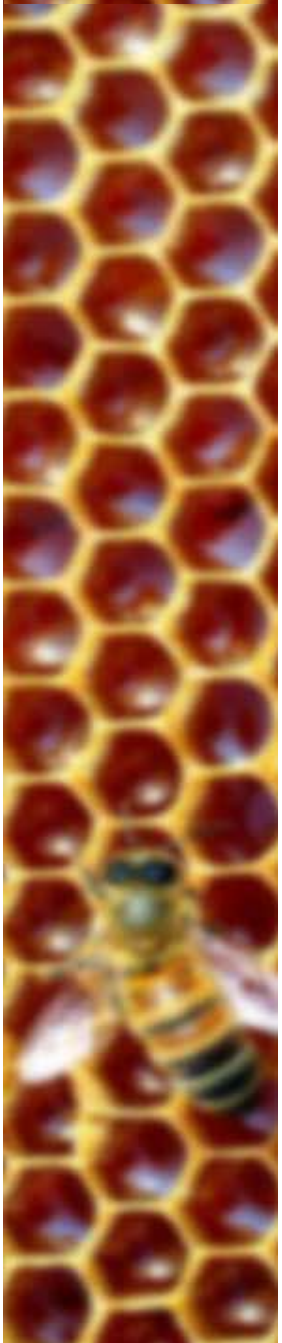


TECHNICAL DATASHEET – MP CHP 210 NG

GENERAL DESCRIPTION

- Fuel Type:	Natural Gas
- Electrical Output:	210 kWe
- Heat Output:	@90°C 243 kWth
- Fuel Input LHV- thermal:	533 kWh/h
- Fuel Input – natural gas:	56,3 Nm^3/h
- AFR:	λ = 1,73
- Electrical efficiency:	39,57 %
-Thermal efficiency:	45,62 %
-Total efficiency:	85,19 %

GAS ENGINE:

- Producer:	MAN Nutzfahrzeuge
-Type:	E 2676 LE 202
- Combustion Cycle:	4 stroke spark ignition
- Cylinders:	6 in line
- Speed:	1500
- Aspiration:	Turbo charged – Int.C
- Acoustic Enclosure:	75 dBA @ 1m std. (internal)

GENERATOR:

- Producer:	Leroy Somer
- Model:	LSA 46.3 L 10
Type:Synchronous	
- Generator Capacity:	287 kVA
- Frequency:	50Hz
- Voltage:	400 V
- Full Load Current:	305 A
- Efficiency:	95.8%

HEAT RECOVERY SYSTEM (Integral to Unit):

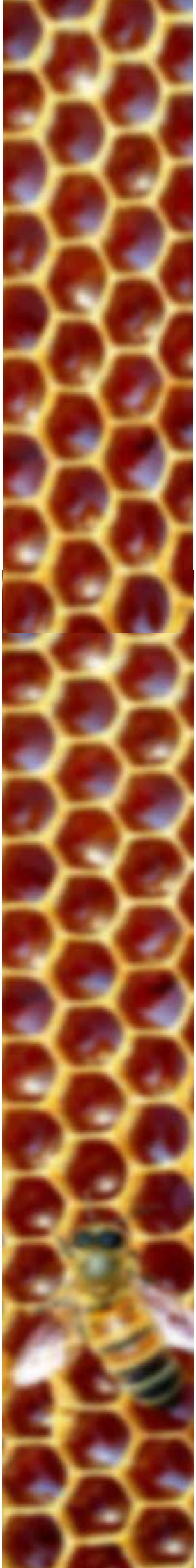
- Fully closed primary water circuit
- Exhaust gas heat exchanger in primary circuit
- PHE between primary & secondary circuits
- Primary water pump integral

CONTROL & PROTECTION:

- On board computer control, protection and monitoring
- Engine stop/start, synchronising, modulation
- Mechanical, electrical and thermal protection
- 70+ parameters monitored, historical data recorded
- 2 way communication between unit and Control Center

MP CHP 260 NG

metalna power



TECHNICAL DATASHEET – MP CHP 260 NG

GENERAL DESCRIPTION

- Fuel Type:	Natural Gas
- Electrical Output:	263 kWe
- Heat Output:	@90°C 375 kWth
- Fuel Input LHV- thermal:	694 kWh/h
- Fuel Input – natural gas:	73,3 Nm^3/h
- AFR:	λ = 1
- Electrical efficiency:	37,98 %
-Thermal efficiency:	54,00 %
-Total efficiency.	91,98 %

GAS ENGINE:

- Producer:	MAN Nutzfahrzeuge
-Type:	E 3262 E 302
- Combustion Cycle:	4 stroke spark ignition
- Cylinders:	12 V
- Speed:	1500
- Aspiration:	Self aspirated
- Acoustic Enclosure:	75 dBA @ 1m std. (internal)

GENERATOR:

- Producer:	Leroy Somer
- Model:	LSA 47.2 S 4
Type:Synchronous	
- Generator Capacity:	370 kVA
- Frequency:	50Hz
- Voltage:	400 V
- Full Load Current:	381 A
- Efficiency:	95.9%

HEAT RECOVERY SYSTEM (Integral to Unit):

- Fully closed primary water circuit
- Exhaust gas heat exchanger in primary circuit
- PHE between primary & secondary circuits
- Primary water pump integral

CONTROL & PROTECTION:

- On board computer control, protection and monitoring
- Engine stop/start, synchronising, modulation
- Mechanical, electrical and thermal protection
- 70+ parameters monitored, historical data recorded
- 2 way communication between unit and Control Center

MP CHP 430 NG

metalna power

TECHNICAL DATASHEET – MP CHP 430 NG

GENERAL DESCRIPTION

- Fuel Type:	Natural Gas
- Electrical Output:	433 kWe
- Heat Output:	@90°C 490 kWth
- Fuel Input LHV- thermal:	1.090 kWh/h
- Fuel Input – natural gas:	115 Nm^3/h
- AFR:	λ = 1,64
- Electrical efficiency:	39,55 %
-Thermal efficiency:	44,97 %
-Total efficiency:	84,52 %

GAS ENGINE:

- Producer:	MAN Nutzfahrzeuge
-Type:	E 3262 LE 232
- Combustion Cycle:	4 stroke spark ignition
- Cylinders:	12 V
- Speed:	1500
- Aspiration:	Turbo charged
- Acoustic Enclosure:	75 dBA @ 1m std. (internal)

GENERATOR:

- Producer:	Leroy Somer
- Model:	LSA 47.2 S 4
Type:Synchronous	
- Generator Capacity:	556 kVA
- Frequency:	50Hz
- Voltage:	400 V
- Full Load Current:	628 A
- Efficiency:	96.4%

HEAT RECOVERY SYSTEM (Integral to Unit):

- Fully closed primary water circuit
- Exhaust gas heat exchanger in primary circuit
- PHE between primary & secondary circuits
- Primary water pump integral

CONTROL & PROTECTION:

- On board computer control, protection and monitoring
- Engine stop/start, synchronising, modulation
- Mechanical, electrical and thermal protection
- 70+ parameters monitored, historical data recorded
- 2 way communication between unit and Control Center

MP CHP 530 NG

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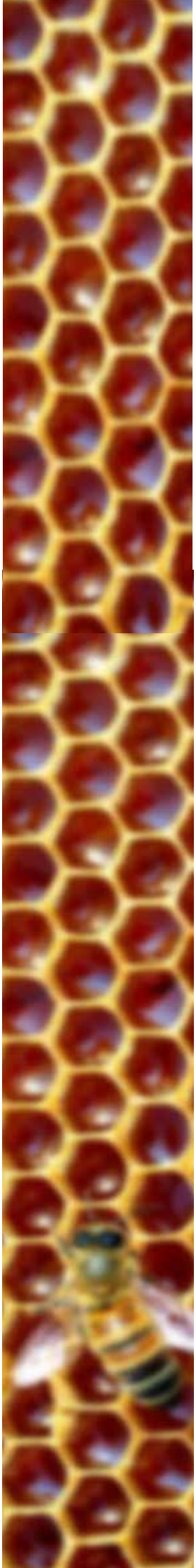


TECHNICAL DATASHEET – MP CHP 530 NG

GENERAL DESCRIPTION

- Fuel Type:	Natural Gas
- Electrical Output:	530 kWe
- Heat Output:	@90°C 687 kWth
- Fuel Input LHV- thermal:	1.365 kWh/h
- Fuel Input – natural gas:	144 Nm^3/h
- AFR:	$\lambda = 1,68$
- Electrical efficiency:	38,85 %
- Thermal efficiency:	50,34 %
- Total efficiency:	89,19 %

GAS ENGINE:

- Producer:	MAN Nutzfahrzeuge
-Type:	E 3262 LE 202
- Combustion Cycle:	4 stroke spark ignition
- Cylinders:	12 V
- Speed:	1500
- Aspiration:	Turbo charged
- Acoustic Enclosure:	75 dBA @ 1m std. (internal)

GENERATOR:

- Producer:	Leroy Somer
- Model:	LSA 49.3 M 8
Type:Synchronous	
- Generator Capacity:	760 kVA
- Frequency:	50Hz
- Voltage:	400 V
- Full Load Current:	769 A
- Efficiency:	96.4%

HEAT RECOVERY SYSTEM (Integral to Unit):

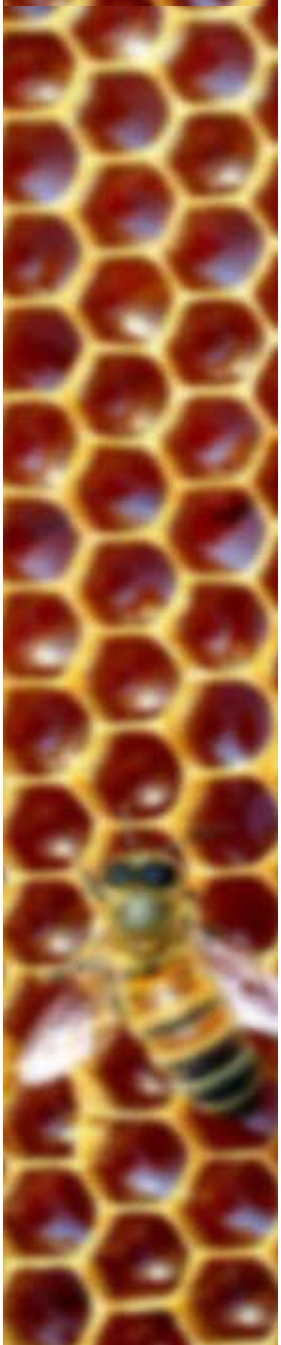
- Fully closed primary water circuit
- Exhaust gas heat exchanger in primary circuit
- PHE between primary & secondary circuits
- Primary water pump integral

CONTROL & PROTECTION:

- On board computer control, protection and monitoring
- Engine stop/start, synchronising, modulation
- Mechanical, electrical and thermal protection
- 70+ parameters monitored, historical data recorded
- 2 way communication between unit and Control Center

MP CHP 770 NG

metalna power



TECHNICAL DATASHEET – MP CHP 770 NG

GENERAL DESCRIPTION

- Fuel Type:	Natural Gas
- Electrical Output:	776 kWe
- Heat Output:	@90°C 844 kWth
- Fuel Input LHV- thermal:	1.859 kWh/h
- Fuel Input – natural gas:	196 Nm^3/h
- AFR:	$\lambda = 1,65$
- Electrical efficiency:	41,80 %
- Thermal efficiency:	45,40 %
- Total efficiency:	87,20 %

GAS ENGINE:

- Producer:	MTU
-Type:	8V 4000
- Combustion Cycle:	4 stroke spark ignition
- Cylinders:	8 V
- Speed:	1500
- Aspiration:	Turbo charged
- Acoustic Enclosure:	75 dBA @ 1m std. (internal)

GENERATOR:

- Producer:	Newage Stamford
- Model:	HCI 634 H Type:Synchronous
- Generator Capacity:	1.100 kVA
- Frequency:	50Hz
- Voltage:	400 V
- Full Load Current:	1.125 A
- Efficiency:	97.1%

HEAT RECOVERY SYSTEM (Integral to Unit):

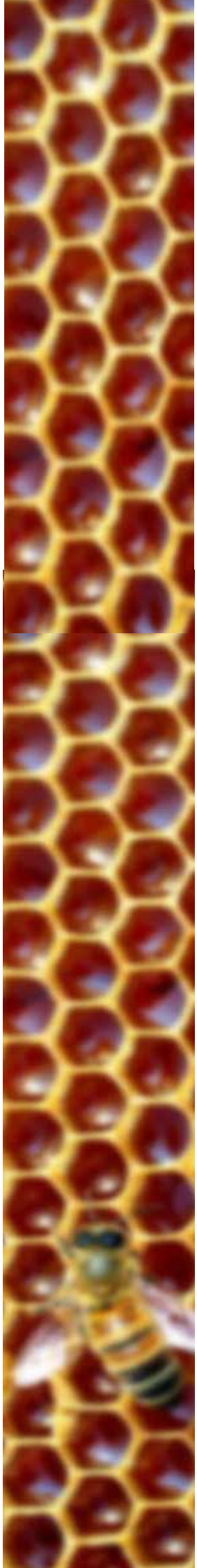
- Fully closed primary water circuit
- Exhaust gas heat exchanger in primary circuit
- PHE between primary & secondary circuits
- Primary water pump integral

CONTROL & PROTECTION:

- On board computer control, protection and monitoring
- Engine stop/start, synchronising, modulation
- Mechanical, electrical and thermal protection
- 70+ parameters monitored, historical data recorded
- 2 way communication between unit and Control Center

MP CHP 1160 NG

metalna power



TECHNICAL DATASHEET – MP CHP 1160 NG

GENERAL DESCRIPTION

- Fuel Type:	Natural Gas
- Electrical Output:	1169 kWe
- Heat Output:	@90°C 1.274 kWth
- Fuel Input LHV- thermal:	2.744 kWh/h
- Fuel Input – natural gas:	290 Nm^3/h
- AFR:	λ = 1,65
- Electrical efficiency:	42,60 %
- Thermal efficiency:	46,43 %
- Total efficiency:	88,03 %

GAS ENGINE:

- Producer:	MTU
-Type:	12V 4000
- Combustion Cycle:	4 stroke spark ignition
- Cylinders:	12 V
- Speed:	1500
- Aspiration:	Turbo charged
- Acoustic Enclosure:	75 dBA @ 1m std. (internal)

GENERATOR:

- Producer:	Newage Stamford
- Model:	PI 734 B Type:Synchronous
- Generator Capacity:	kVA
- Frequency:	50Hz
- Voltage:	400 V
- Full Load Current:	1.695 A
- Efficiency:	97.2%

HEAT RECOVERY SYSTEM (Integral to Unit):

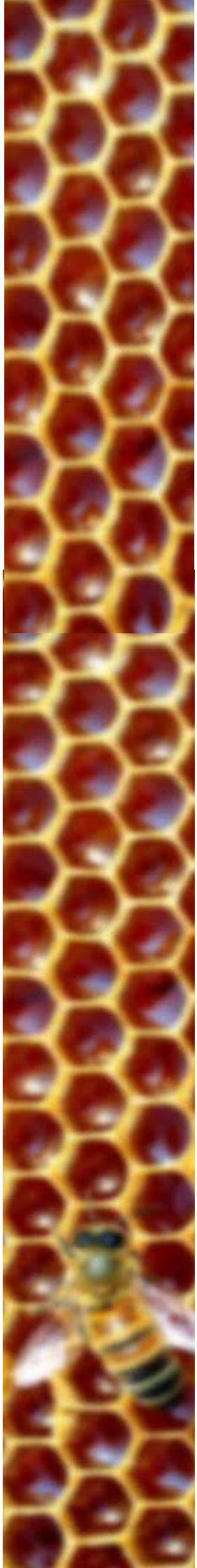
- Fully closed primary water circuit
- Exhaust gas heat exchanger in primary circuit
- PHE between primary & secondary circuits
- Primary water pump integral

CONTROL & PROTECTION:

- On board computer control, protection and monitoring
- Engine stop/start, synchronising, modulation
- Mechanical, electrical and thermal protection
- 70+ parameters monitored, historical data recorded
- 2 way communication between unit and Control Center

MP CHP 1560 NG

metalna power



TECHNICAL DATASHEET – MP CHP 1560 NG

GENERAL DESCRIPTION

- Fuel Type:	Natural Gas
- Electrical Output:	1562 kWe
- Heat Output:	@90°C 1.698 kWth
- Fuel Input LHV- thermal:	3.650 kWh/h
- Fuel Input – natural gas:	385 Nm^3/h
- AFR:	λ = 1,65
- Electrical efficiency:	42,80 %
- Thermal efficiency:	46,53 %
- Total efficiency:	89,33 %

GAS ENGINE:

- Producer:	MTU
-Type:	16V 4000
- Combustion Cycle:	4 stroke spark ignition
- Cylinders:	16 V
- Speed:	1500
- Aspiration:	Turbo charged
- Acoustic Enclosure:	75 dBA @ 1m std. (internal)

GENERATOR:

- Producer:	Newage Stamford
- Model:	PI 734 E Type:Synchronous
- Generator Capacity:	kVA
- Frequency:	50Hz
- Voltage:	400 V
- Full Load Current:	2.265 A
- Efficiency:	97.4%

HEAT RECOVERY SYSTEM (Integral to Unit):

- Fully closed primary water circuit
- Exhaust gas heat exchanger in primary circuit
- PHE between primary & secondary circuits
- Primary water pump integral

CONTROL & PROTECTION:

- On board computer control, protection and monitoring
- Engine stop/start, synchronising, modulation
- Mechanical, electrical and thermal protection
- 70+ parameters monitored, historical data recorded
- 2 way communication between unit and Control Center