

## TECHNICAL DETAILS – INDOP 15TO

TECHNICAL DATA FOR UNIT	EM	15 kW
		100%
Energy input	kW	50,3
Gas consumption	Nm <sup>3</sup> /h	5,03
Electric power	kW <sub>el.</sub>	15
Power factor	$\lambda$	0,96-0,98
Thermal power	kW	34
Electric efficiency	%	30
Thermal efficiency	%	67,6
Total efficiency	%	97,6
Seasonal space heating energy efficiency	%	184
<b>Thermal circuit</b>		
Flow temperature	°C	85–90
Return temperature	°C	35–70
Minimum flow rate of medium	l/min	11,7
Minimum flow rate of medium	m <sup>3</sup> /h	0,7
<b>Basic dimensions and mass of INDOP CHP unit (no handles, compensation or attachments)</b>		
Length	mm	1491
Width	mm	800
Height	mm	1266
Weight	kg	800
<b>Technical data - engine</b>		
Manufacturer		TOYOTA 4Y
Engine type		L
Operating mode		4-Takt Otto
Configuration		R
Number of cylinders		4
Cylinder diameter	mm	91
Engine stroke	mm	86
Volume	cm <sup>3</sup>	2237,0
Nominal speed	RPM	1540
Length	mm	610,5
Width	mm	590
Height	mm	764
Net weight	kg	122
Lubricating oil consumption	kg/h	0,003
Compression ratio	$\epsilon$	10,5
Oil volume in the engine max/min	l	11,2/1,5
Oil tank volume	l	23,8

Engine fuel pressure	mbar	20–100
<b>Technical data - alternator</b>		
Frequency	Hz	50
Voltage	V	400
Power	kVA	28,9
Power factor	$\lambda$	0,76
Revolutions per minute	RPM	1500
<b>Thermal energy balance</b>		
Energy input	kW	50,3
Cooling water	kW	24,3
Flue gases	kW	9,7
Heat to power ratio		2,27
<b>Flue gas</b>		
Flue gases temperature with full load	°C	103+/-5
Flue gases mass flow rate - wet	kg/h	63,4
Flue gases mass flow rate - dry	Nm3/h	52,8
Maximum pressure drop of flue gases	mbar	20
<b>Air combustion data</b>		
Combustion air mass flow	kg/h	61,4
Ventilation air flow	m3/h	18
<b>Emissions</b>		
CO @ 5% O2	mg/Nm3	55
NOx @ 5% O2	mg/Nm3	65
CO (total energy produced)	mg/kWh	59
NOx (total energy produced)	mg/kWh	70
CO (electricity produced)	mg/kWh	194
NOx (electricity produced)	mg/kWh	229
CO (heat produced)	mg/kWh	85
NOx (heat produced)	mg/kWh	122



Symbolic photo (INDOP micro units)