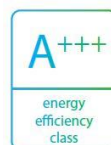


TECHNICAL DETAILS – INDOP 20TO

TECHNICAL DATA FOR UNIT	EM	20 kW
		100%
Energy input	kW	64,8
Gas consumption	Nm ³ /h	6,48
Electric power	kW _{el.}	20
Power factor	λ	0,96-0,98
Thermal power	kW	41,9
Electric efficiency	%	30,9
Thermal efficiency	%	64,7
Total efficiency	%	95,6
Seasonal space heating energy efficiency	%	189
Sound power	dB	65
Sound pressure	dB(A)	50
Thermal circuit		
Flow temperature	°C	85–90
Return temperature	°C	35–70
Minimum flow rate of medium	l/min	31,7
Minimum flow rate of medium	m ³ /h	1,9
Basic dimensions and mass of INDOP CHP unit (no handles, compensation or attachments)		
Length	mm	1491
Width	mm	800
Height	mm	1266
Weight	kg	800
Technical data - engine		
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 ³	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	ϵ	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

Technical data - alternator		
Frequency	Hz	50
Voltage	V	400
Power	kVA	28,9
Power factor	λ	0,76
Revolutions per minute	RPM	1540
Thermal energy balance		
Energy input	kW	64,8
Cooling water	kW	24,3
Flue gases	kW	17,6
Heat to power ratio		2,10
Flue gas		
Flue gases temperature with full load	°C	110+/-5
Flue gases mass flow rate - wet	kg/h	81,6
Flue gases mass flow rate - dry	Nm3/h	68
Maximum pressure drop of flue gases	mbar	20
Air combustion data		
Combustion air mass flow	kg/h	79
Ventilation air flow	m3/h	18
Emissions		
CO @ 5% O2	mg/Nm3	60
NOx @ 5% O2	mg/Nm3	75
CO (total energy produced)	mg/kWh	66
NOx (total energy produced)	mg/kWh	82
CO (electricity produced)	mg/kWh	204
NOx (electricity produced)	mg/kWh	255
CO (heat produced)	mg/kWh	97
NOx (heat produced)	mg/kWh	122



Symbolic photo (INDOP micro units)