



# NUOVA TURBINA TGE

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		Revision	E	Page	3

## 2. PERFORMANCE GUARANTEES

### 2.1. Performance guarantee values

#### Power generation

		Value
Net electric output	$W_{Net}$ kW	31285
Net heat rate	$HR_{Net}$ kJ/kWh	9922

#### Definitions

Where:

$W_{El}$  = Electric output measured at generator terminals (kW)

$Q_F$  = Heat consumption based on Lower heating value (LHV)<sup>1</sup> (kJ/kg) and mass flow (kg/s)

$$W_{Net} = W_{El} - W_{Aux}$$

Where:

$W_{El}$  = Electric output measured at generator terminals (kW)

$W_{Aux}$  = Auxiliary power for objects in Siemens scope of supply, which is continuously in operation to run the plant at steady state condition (kW)

$$HR_{Net} = \frac{Q_F \cdot 3600}{W_{Net}}$$

### 2.2. Comparison of test result to performance guarantee values

Measured values must be corrected for site conditions deviating from the reference conditions. A separate document including both correction curves and formulas will be made prior to the test.

The test tolerances to be applied, before comparison to guaranteed data, will be based on the table below. Within the tolerances, neither bonus nor liquidated damages are to be paid.

#### Test tolerances

Power Output  $\pm 0.8 \%$

Heat Rate  $\pm 1.0 \%$

<sup>1</sup> Gas fuel: The determination of the lower heating value is based on ISO 6976:2005 "Natural gas - Calculation of calorific values, density, relative density and Wobbe index from composition". Reference values for LHV is for combustion 15 °C, for metering 1.01325 bara/ 0 °C and valid for dry gas.

## 2.2.1.3 Prestazioni turbina

con combustibile : gas naturale secondo 69820-CGN-001-G-ST-001

Carico	%	100	100	100	100	100
Temperatura ambiente	°C	-5	5	15	25	35
Umidità relativa	%	60	60	60	60	60
Potenza ai morsetti	KW	30010	28010	25740	26310	24720
Consumo combustibile	KW	82590	78140	73200	74500	71100
Portata combustibile	Kg/s	1.7	1.6	1.5	1.3	0.9
Pressione combustibile	Barg	40.8	40.8	40.8	40.8	40.8
Consumo specifico	Kj/kWh	9907	10043	10238	10194	10354
Portata aria	Kg/s	96.00	91.60	86.6	87.9	84.6
Perdite aspirazione	Pa	1000	1000	1000	1000	1000
Contropressione scarico	Pa	2500	2500	2500	2500	2500
Nox (@15%O <sub>2</sub> )	Mg/Nm <sup>3</sup>	51.3	51.3	51.3	51.3	51.3
CO (@15%O <sub>2</sub> )	Mg/Nm <sup>3</sup>	31.3	31.3	31.3	31.3	31.3
Portata gas di scarico	Kg/s	97.7	93.2	88.1	89.2	85.5
Temperatura gas di scarico	°C	485	493	501	499	506
Composizione gas di scarico	N <sub>2</sub>	75.55	75.37	75.01	74.65	74.01
	O <sub>2</sub>	14.25	14.25	14.22	14.11	13.98
	H <sub>2</sub> O	6.25	6.45	6.88	7.34	8.15
	CO <sub>2</sub>	3.05	3.03	2.99	3.00	2.98
	Ar	0.90	0.90	0.90	0.89	0.88



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