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COMPLEX GAS BURNER FOR AN AERODERIVATIVE TURBINE

Prof. Dr. Tudor PRISECARU*
Prof. Dr. Lucian MIHAESCU*
Dr. Adrian ADAM**
Adina BOSOAGA**
Silvia PRUNDIANU**
Conf. Dr. Ion OPREA*
Conf. Dr. Gabriel NEGREANU*

* - University Politehnica of Bucharest
** - INCDE-ICEMENERG

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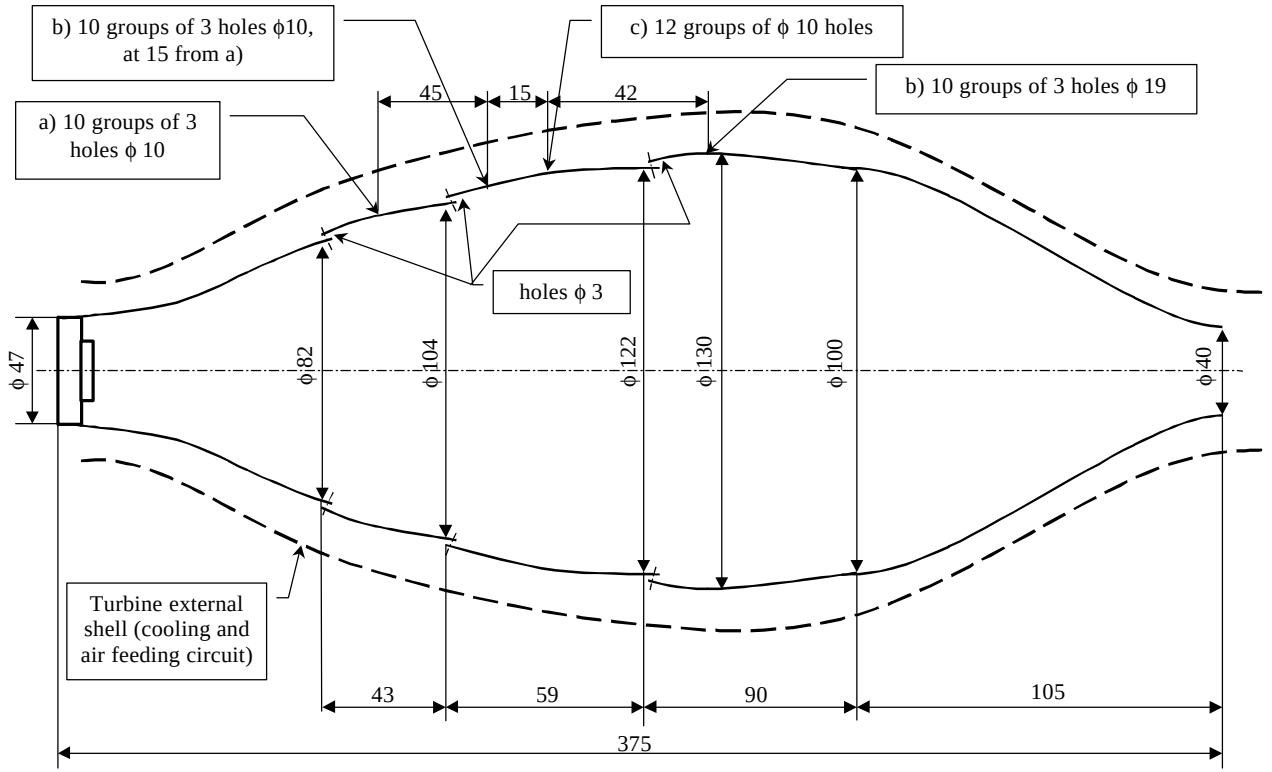
THE INITIAL SCHEME OF AI24 GAS TURBINE COMBUSTION CHAMBER



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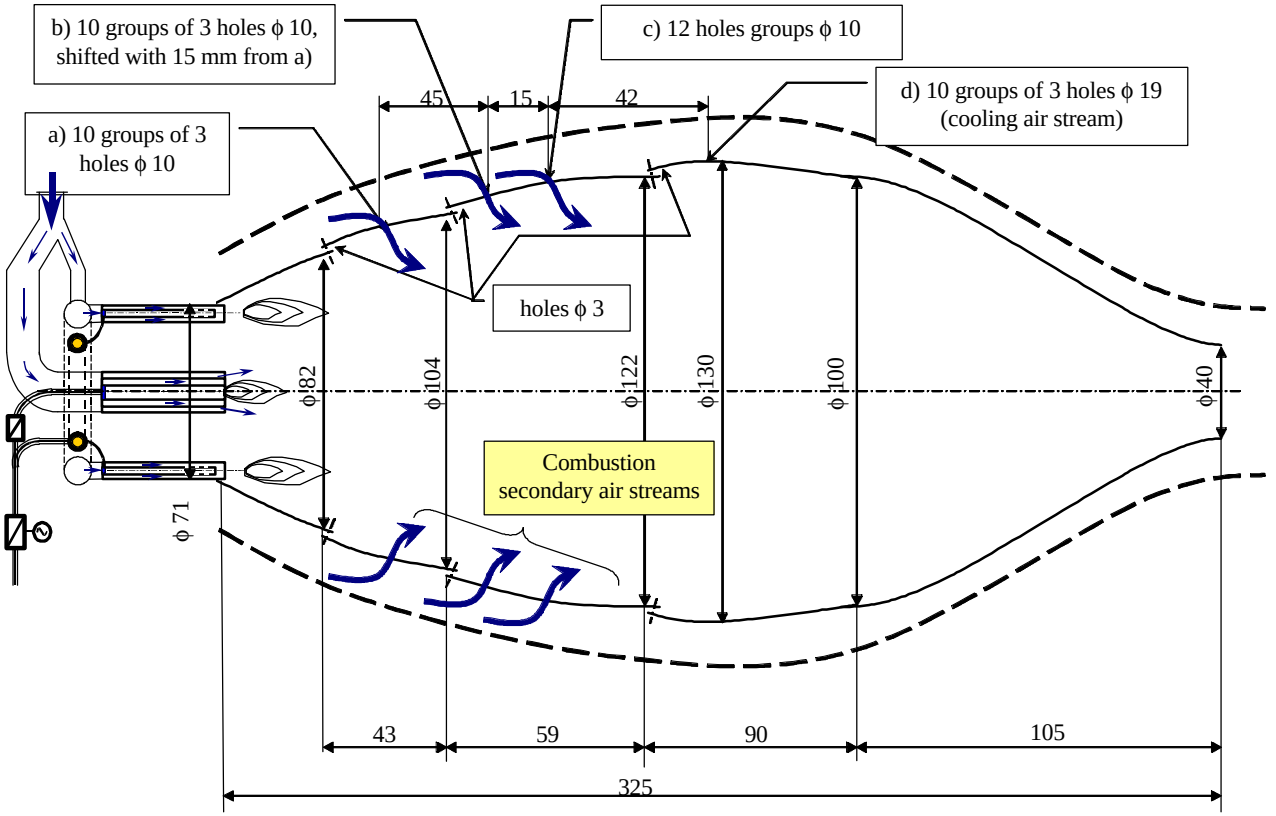

Initial design solution for gas turbine combustion chamber

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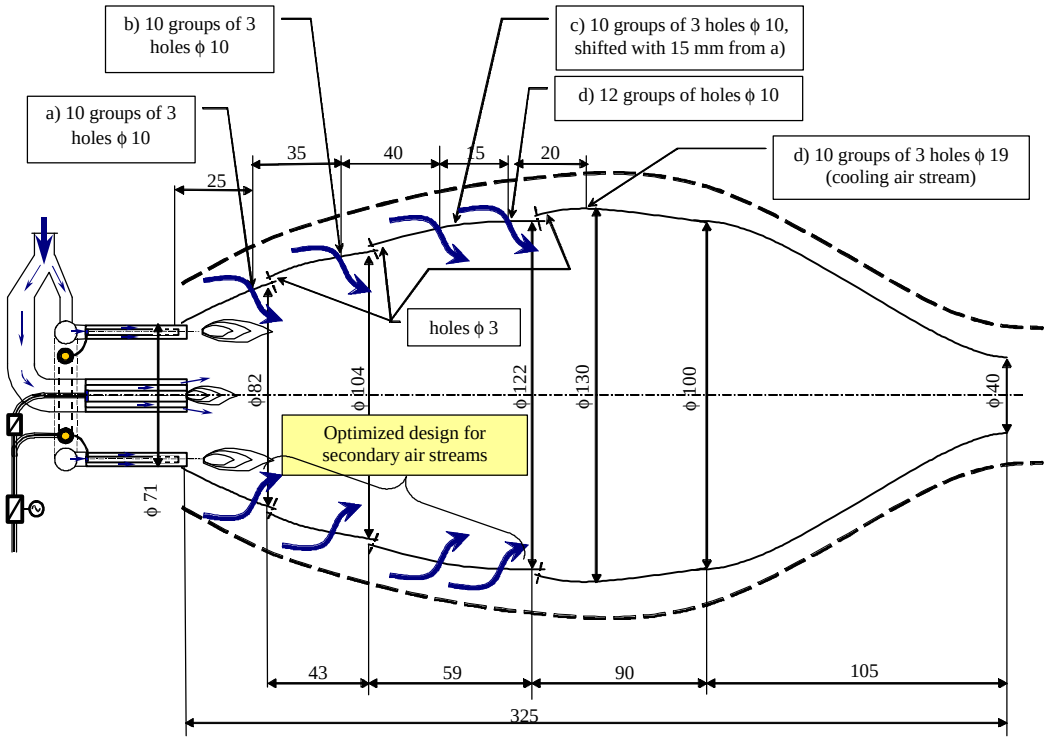
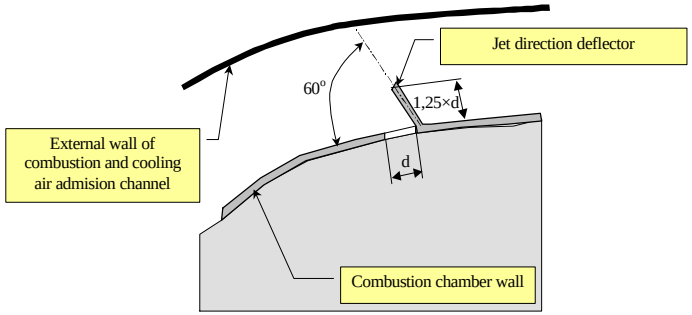


Optimized solution for gas turbine combustion chamber



Deflector position for jet direction

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COMBUSTION PARAMETERS FOR COMBUSTION CHAMBER MODIFIED IN FIRST STAGE, IN FINAL SECTION OF COMBUSTION ZONE

	Temperature (K)	Velocity (m/s)	Chemical species concentration			
			O_2 (% in vol.)	CO_2 (% in vol.)	CO (%in vol.)	NO (mg/m^3_N)
Mean value	1333,8	21	12,2	3,9	0,029	150,7
Peak value	1928,6	39,3	14,1	6,6	0,145	366,3

PEAK AND MEAN VALUES FOR TEMPERATURE, VELOCITY AND CHEMICAL SPECIES CONCENTRATION IN THE OUTLET SECTION FOR THE OPTIMIZED COMBUSTION CHAMBER DESIGN.

	Temperature (K)	Velocity (m/s)	Chemical species concentration			
			O_2 (% in vol.)	CO_2 (% in vol.)	CO (% in vol.)	NO (mg/m^3_N)
Mean value	1373	16.9	11.7	4.1	0.02	123.2
Peak value	1787	30.4	13.9	5.8	0.14	270.3

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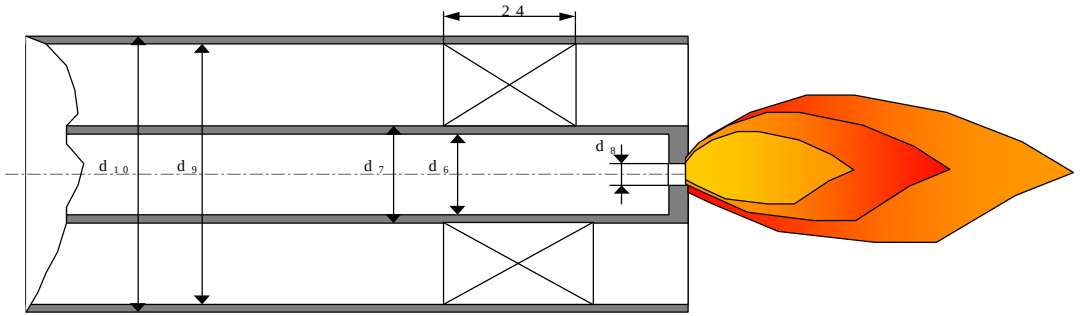
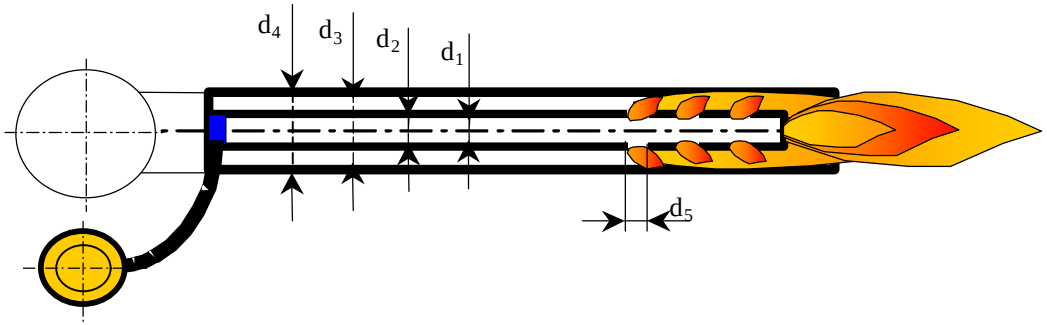


The central burner



The peripheral burner

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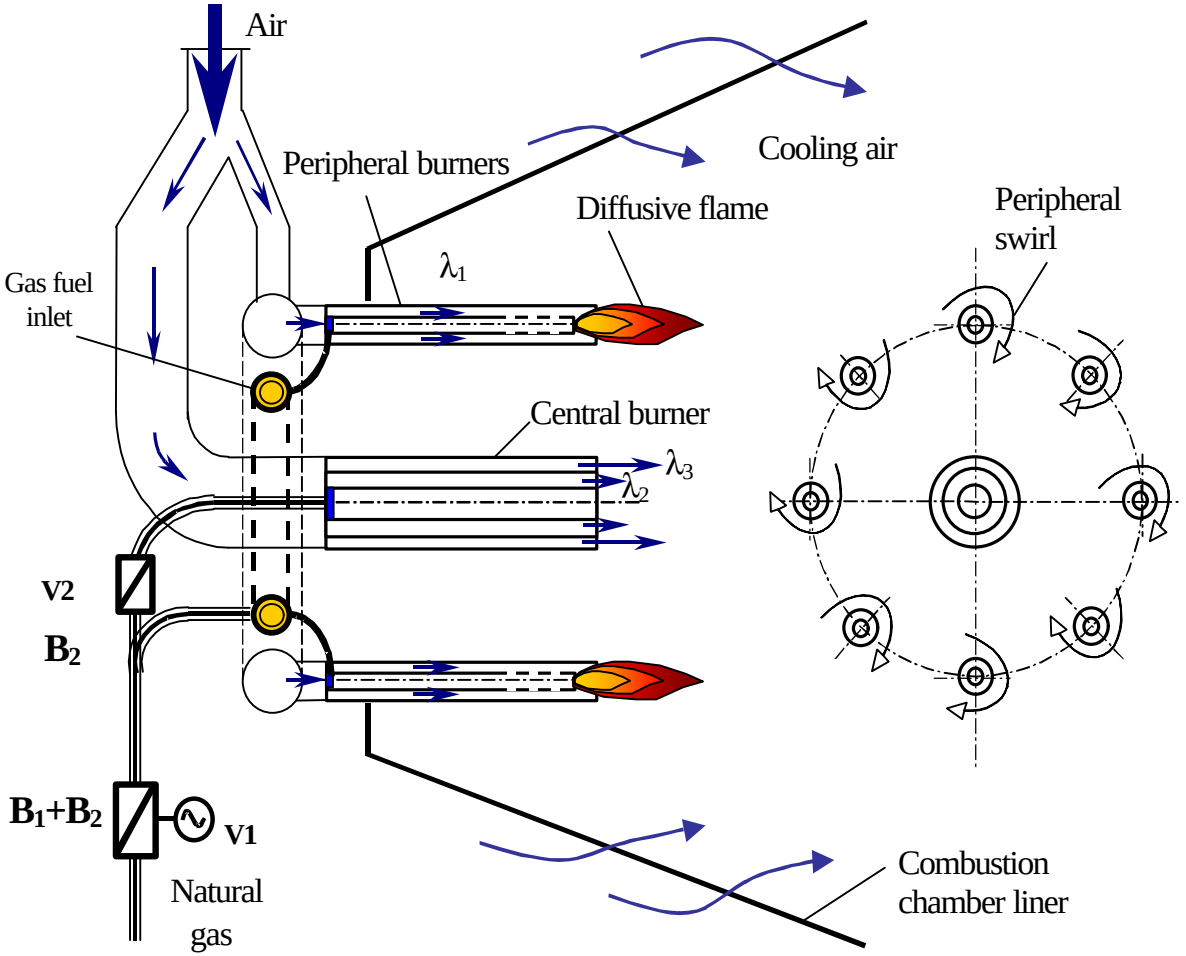

Primary operation modes

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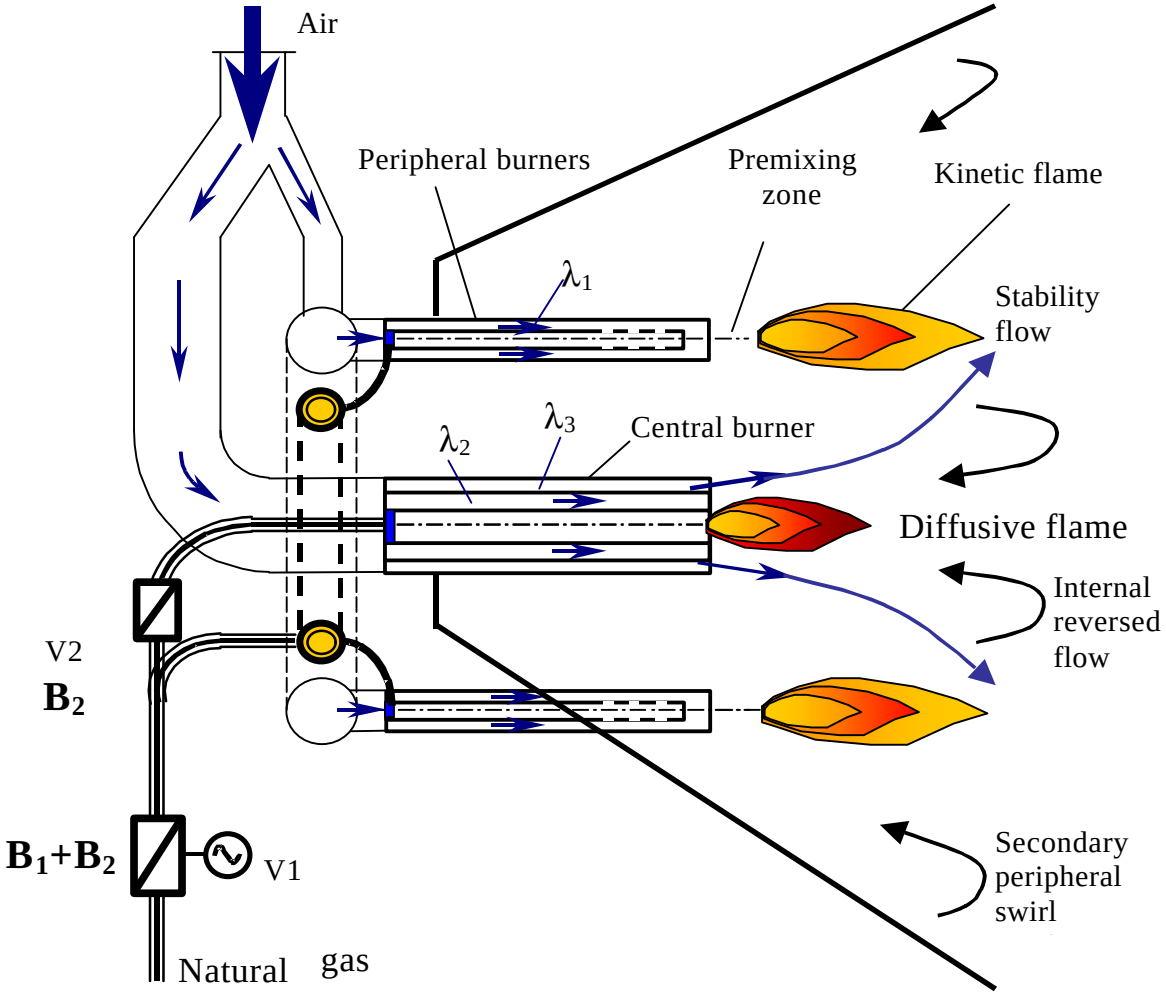

Part-load operation

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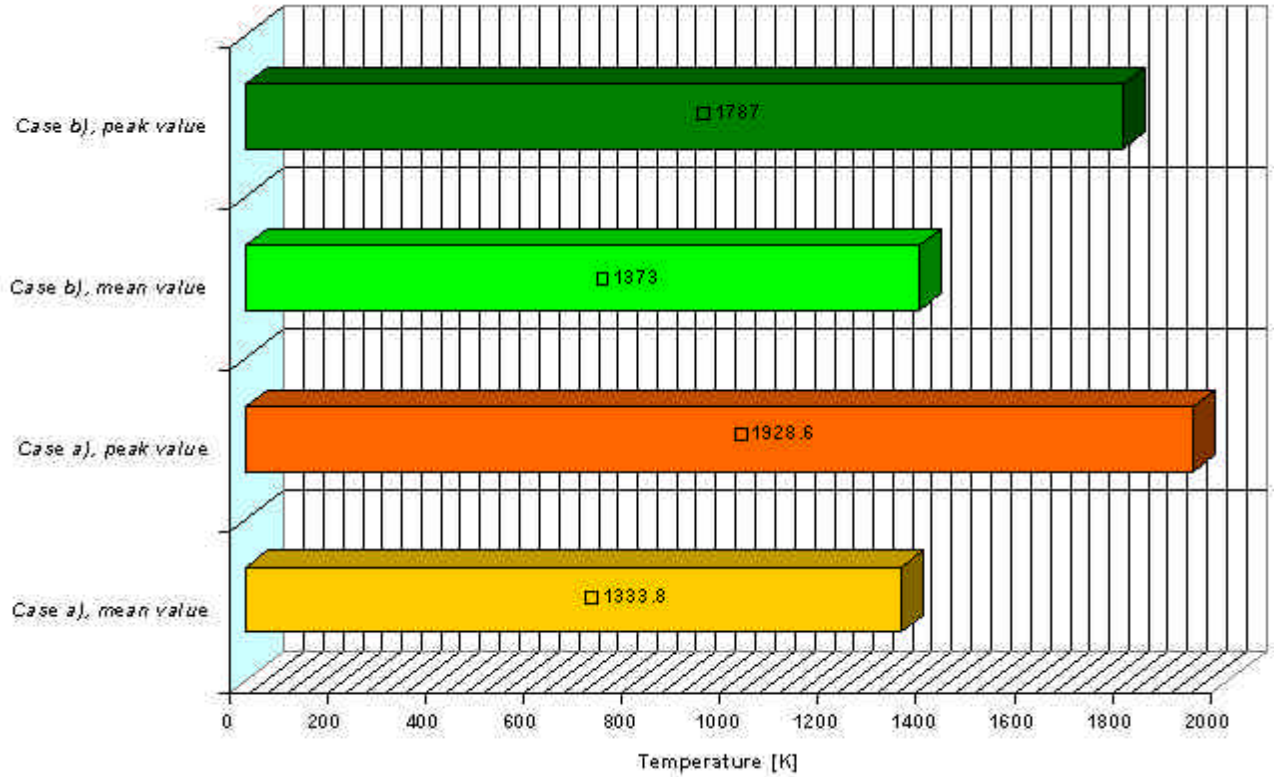
FLUE GAS TEMPERATURE IN THE LAST STAGE OF COMBUSTION CHAMBER [K]



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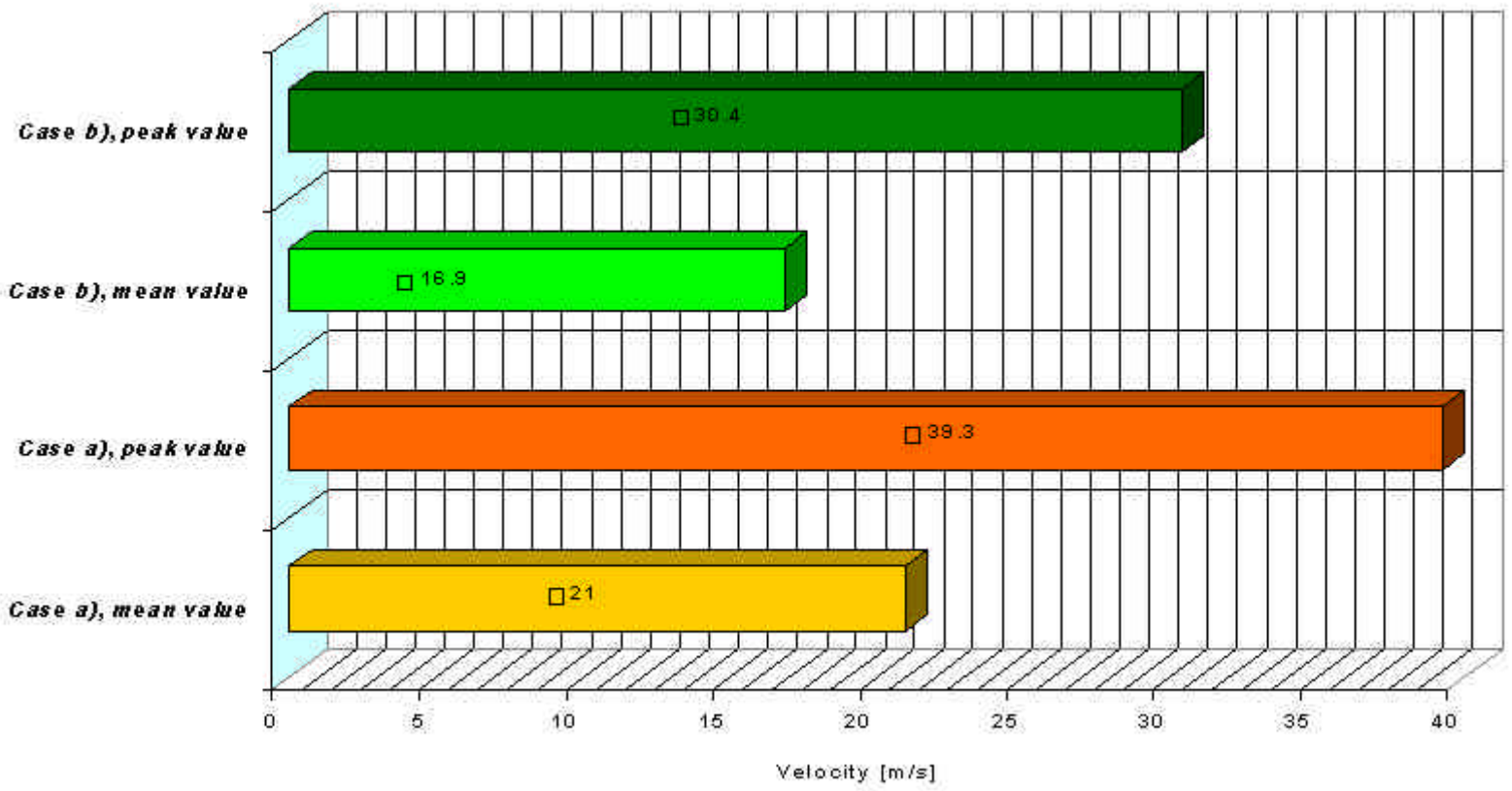
FLUE GAS VELOCITY FOR OUTLET SECTION [m/s]



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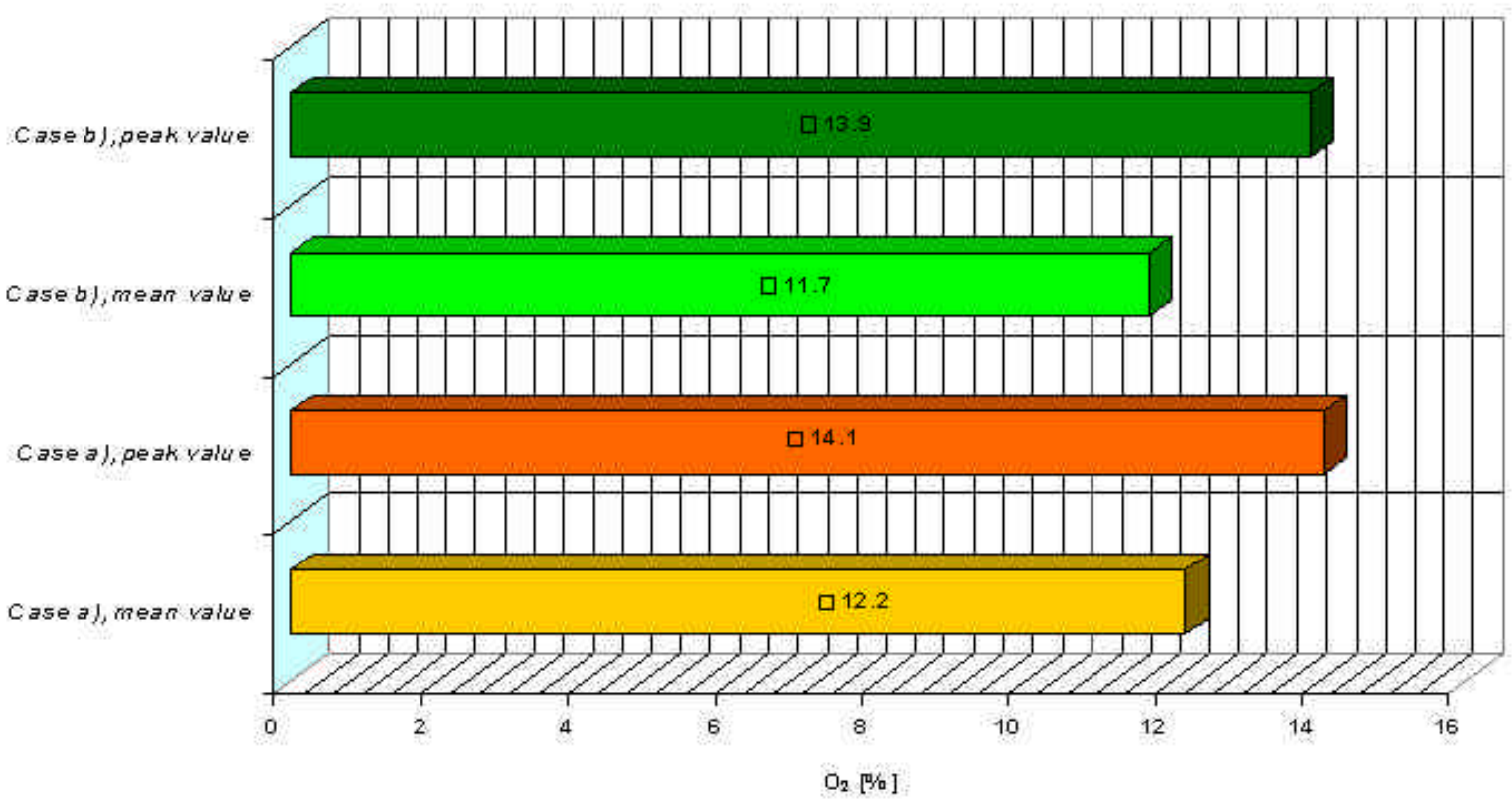
OXYGEN PERCENT IN FLUE GASES, %



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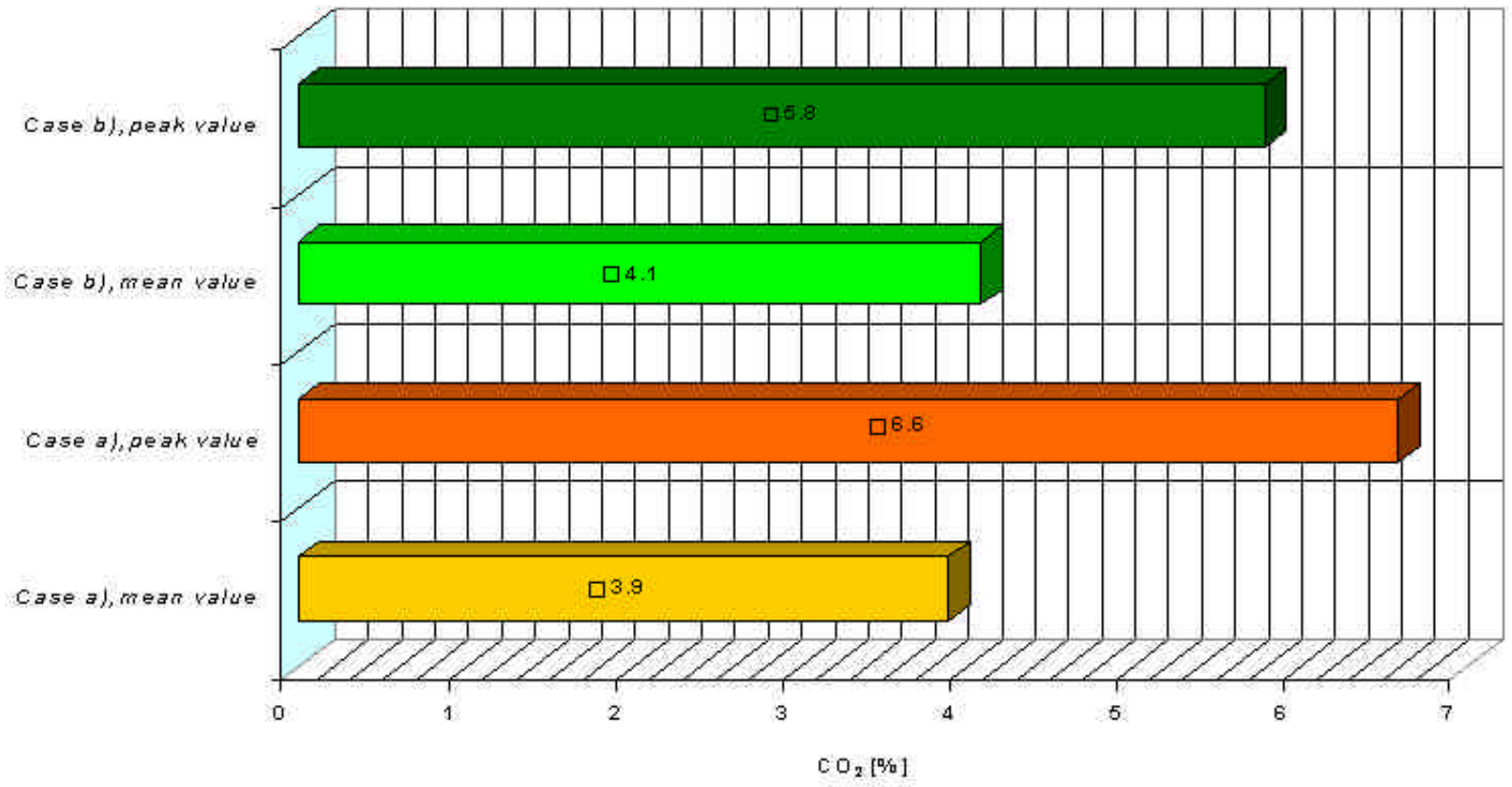
CARBON DIOXYDE PERCENT IN FLUE GASES, %



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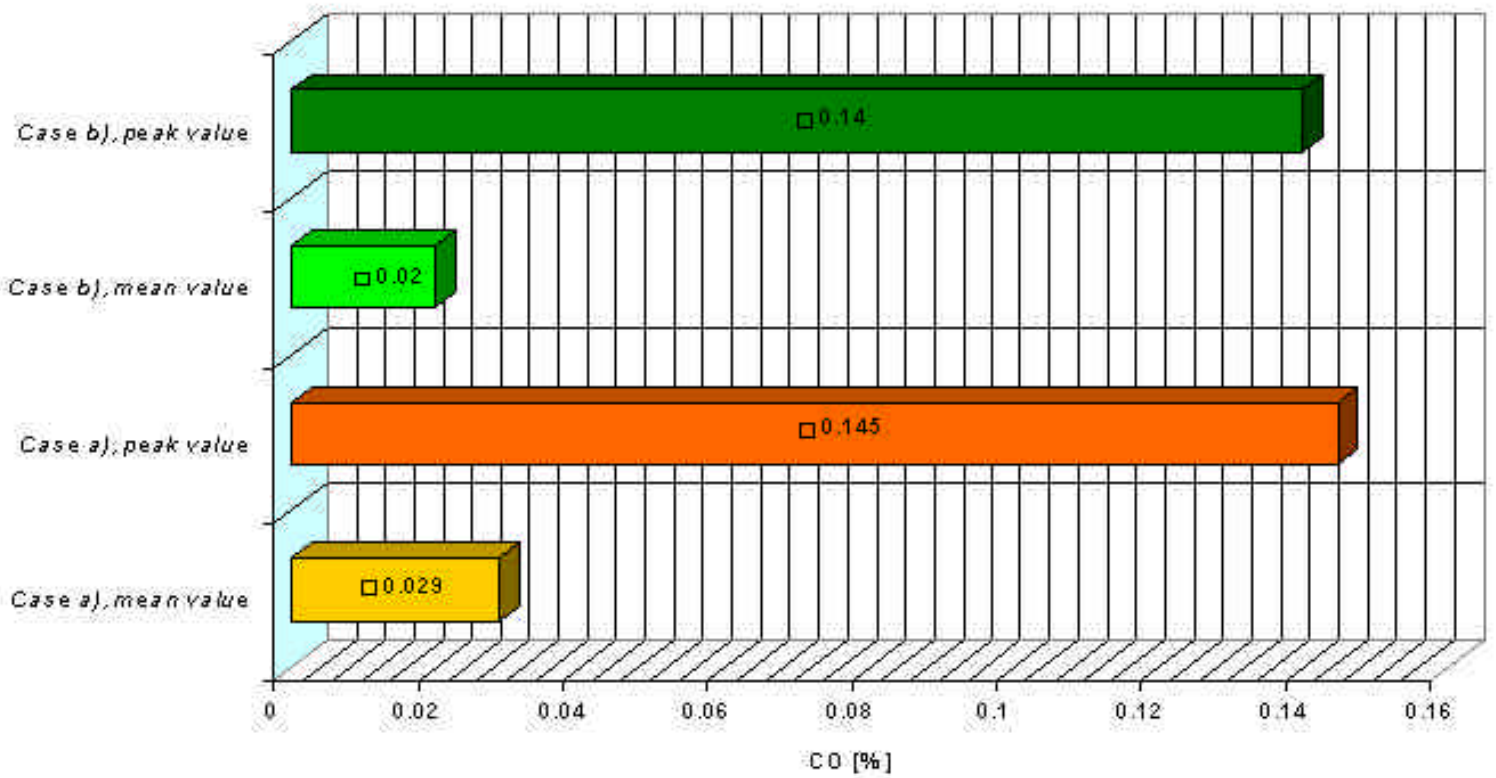
CARBON MONOXYDE PERCENT IN FLUE GASES, %



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NOx CONCENTRATION IN FLUE GASES