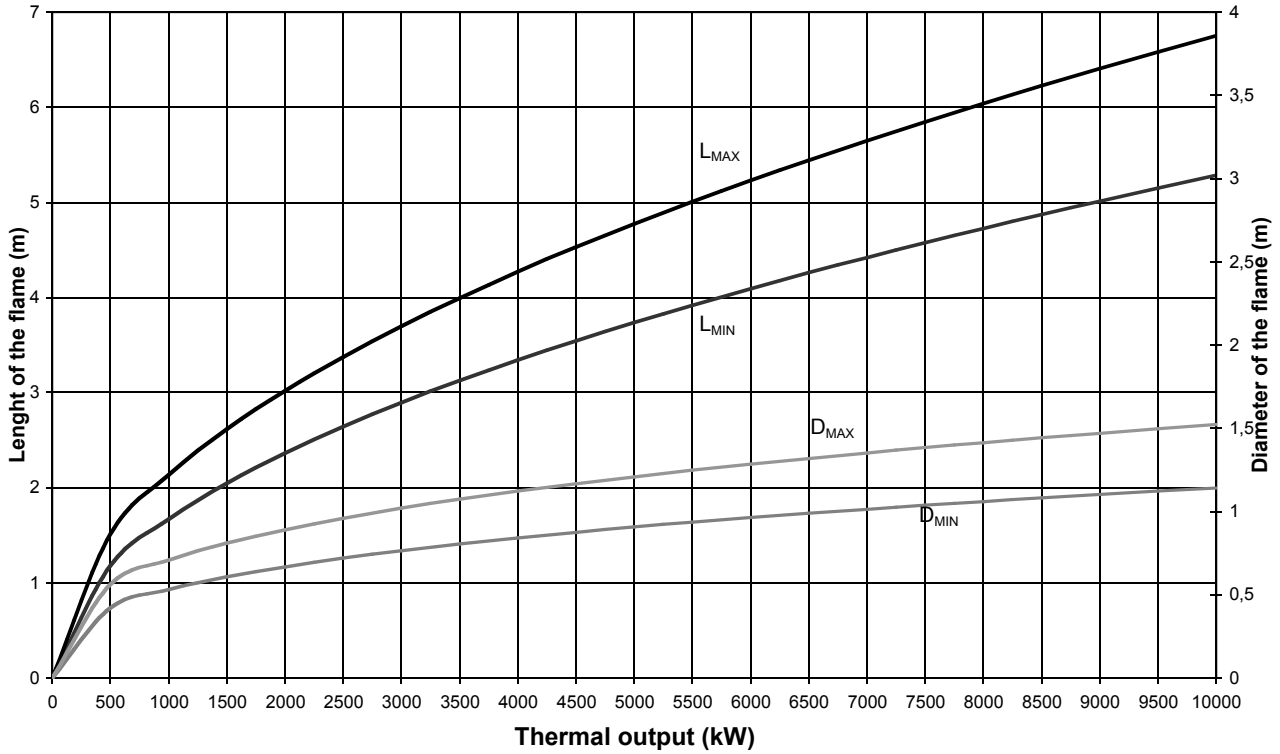
Diagram 88 *Lenght and diameter of the flame in relation to burner output*



diameter of 700 mm and a length of 1,600 mm, therefore the combination with the RLS 70 burner is confirmed.

If the dimensions were very different to those of the test boiler, we could obtain a flame geometry (length and width) which is not optimised for the application; when the combustion chamber is too short, physical damage may be caused to the body of the boiler due to heat stress caused by the contact of the flame with the bottom wall.

3.2.4 Selection of the gas train

The choice of the gas train to combine with the burner must be made, bearing in mind that the sum of all the pressure drops suffered by the gaseous fuel must not exceed the available pressure.
Starting downstream, the following drops must be taken into consideration:
1. H_1: back pressure in the combustion chamber;
2. H_2: combustion head;
3. H_3: gas train;
4. H_4: feed system up to the delivery point delivery;

The minimum pressure available at the delivery point for the gaseous fuel being H, the following condition must be verified:

$$H \geq H_1 + H_2 + H_3 + H_4$$

For ease of calculation, the graphs of gas train pressure drops have been estimated and represented graphically under the form of graphs and tables already inclusive of the portion lost due to the combustion head (H_2+H_3). However, to give complete information, these graphs also illustrate the pressure drop of the combustion head alone (H_2). In order to obtain the pressure drop of just the gas train (H_3), just calculate the difference between the two values.
Therefore, the choice of the gas train must be made to satisfy the following equation:

$$H_2 + H_3 \leq H - (H_1 + H_4)$$

In the case, the values are as follows:
H=2,800 Pa (28 mbar);
H_1=450 Pa (4.5 mbar);
H_4=1.000 Pa (10 mbar)

The pressure drop of the gas train and the combustion head must not exceed the following value:

$$H_2 + H_3 \leq 2.800 - (450 + 1000) = 1.350 \text{ Pa} = 13,5 \text{ mbar}$$