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## Guidelines for Building a Pipe Burner Using the HPGX-1 Venturi

You need to drill enough holes in the pipe so that the total area of the drilled holes is at least $80 \%$ of the cross sectional area of the internal diameter of the pipe you are using.

The formula used is 3.1416 x the internal radius squared - Area $=\mathrm{pi} \times \mathrm{r}$ squared ( $\mathrm{A}=\| \mathrm{Ir} 2$ )
Suggested minimum \# of $1 / 8^{\prime \prime}$ holes for $3 / 4^{\prime \prime}$ black pipe is 32
Suggested minimum \# of $1 / 8$ " holes for 1 " black pipe is 50
Suggested minimum \# of $1 / 8$ " holes for $1-1 / 4$ " black pipe is 80
Suggested minimum \# of $1 / 8^{\prime \prime}$ holes for $1-1 / 2^{\prime \prime}$ black pipe is 115
Suggested minimum \# of $1 / 8$ " holes for 2 " black pipe is 205
Pipe must be capped on one end and must be straight - no 45's or 90 's. The pipe's length is important only in the length of flame area you need. A $3 / 4$ " pipe will provide only about 16 " of flame following the hole guidelines above.

You may require more inches of flame for your application, requiring more drilled holes or a bigger pipe diameter

BTU will depend on gas pressure. Example: A burner with 100 1/8" holes using propane gas set @ 11" water column will provide about 30,000 BTU.

Also consider these factors when determining the length of the pipe.

- Start first hole about 4" away from Venturi
- Space holes $1 / 2^{\prime \prime}$ or less if you want the flame to jump from hole to hole

Your pipe burner must be supplied with a method for fresh air to enter and exhaust air to exit the device you install it in.

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