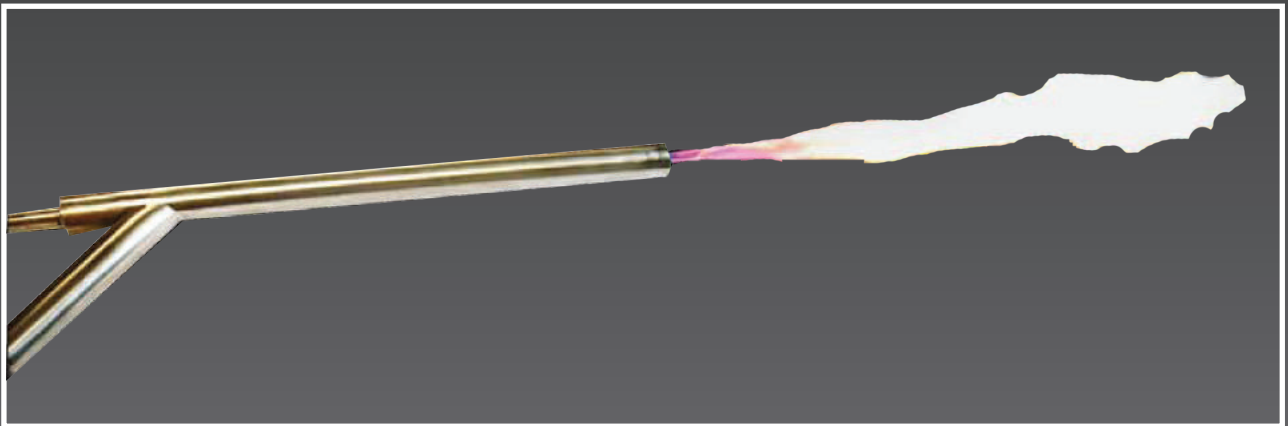


# FORCE

Gas-Oxygen Burner

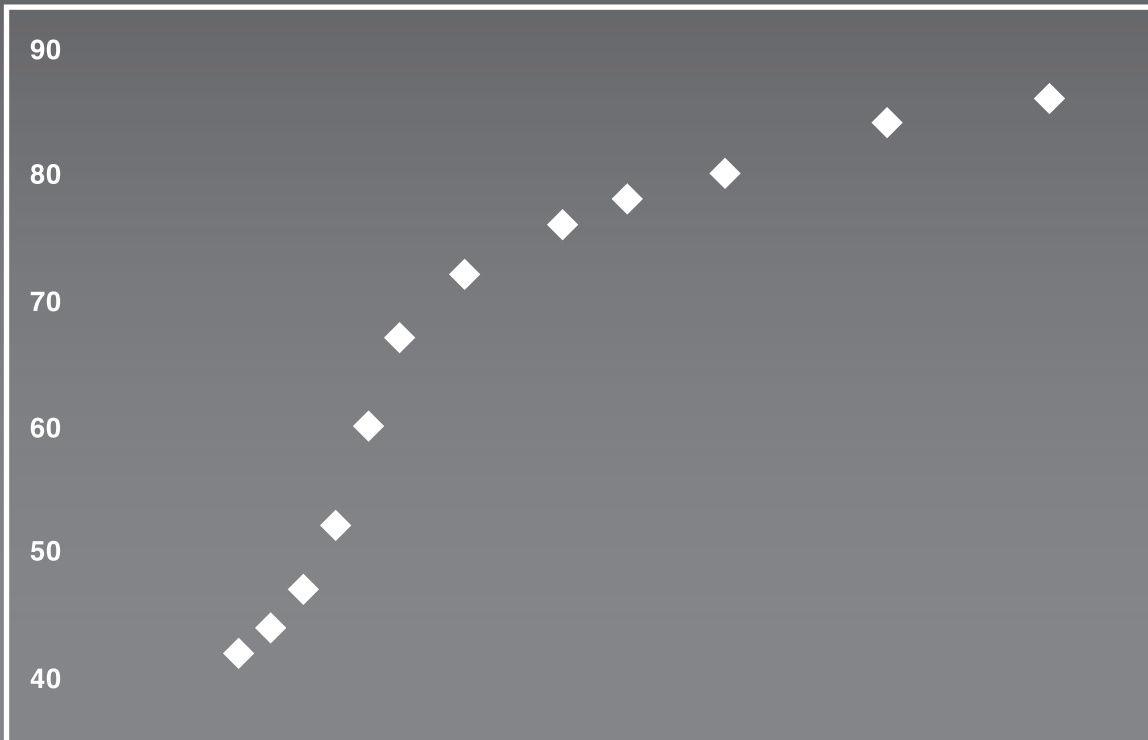


**FORCE's simple design and user-friendly connections make hookups safe and convenient. Simple installation and burner removal eliminate downtime for changes. No adjustments are necessary to have repeatable, reliable firing, providing flexibility in operation by providing a stable flame at 5:1 turndown.**

**Improve furnace efficiency by eliminating the need for recuperators and regenerators, as well as substantially reducing exhaust volume. Effective heat transfer, using oxy-fuel technology, reduces fuel costs by burning gas more efficiently. Stable flame characteristics allow for use in both oxy-fuel and air-fuel furnaces, while low burner pressures allow for use of any gas or oxygen source.**

**Care should be taken in selecting the number of burners, locations, and capacities of the burners. An ERTL representative will gladly assist in recommending burner applications based on history and experience. The chart below shows visible flame length versus firing rate for FORCE burner.**

## **Flame Length vs. Firing Rate**

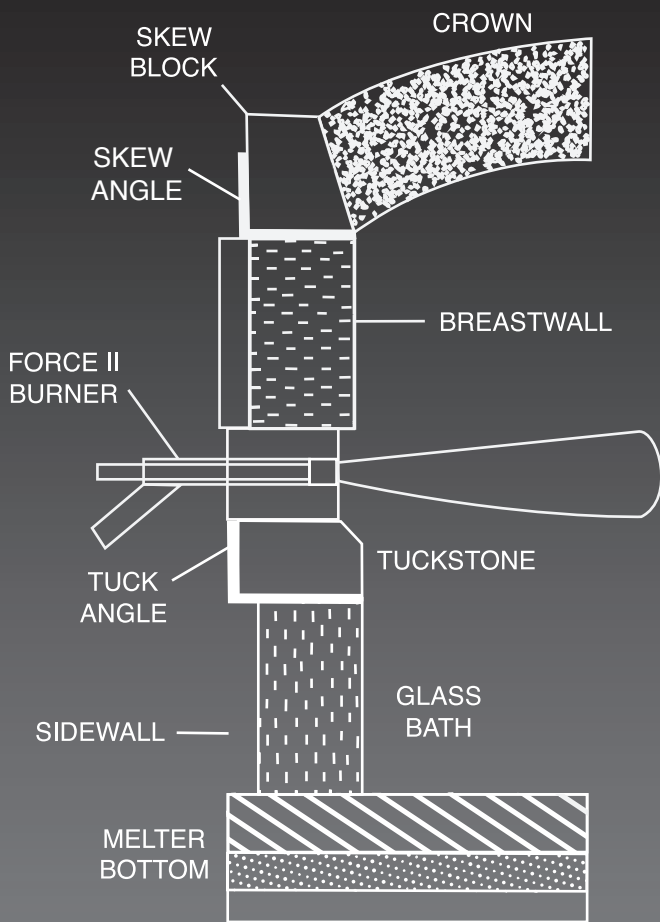


**Maximum firing capacity is 3.0 MM BTU per hour.**

**Operating pressures for the FORCE burner at maximum firing capacity are 5psi natural gas and 3psi oxygen.**

**At all firing rates for the FORCE burner, the visible flame diameter is stable at approximately 18 inches.**

*Note: Add an additional 30% to the visible flame length when calculating the heat distribution for the flame and to ensure that the flame (both and invisible) does not impinge on the breastwall.*



For most applications, mount the FORCE burner horizontally above the glass.

Never allow the flame to impinge on the glass surface.

Keep the flame from contacting the batch piles.

Use refractory splits if the tuckstone has a low profile

Do not allow the visible flame to reach more than 2/3 of the way across the furnace

FORCE burner should never be closer than 3 feet from the front wall or back wall.

Never use high-turndown burners near the furnace exhaust.

ALWAYS seal the burner block using mortar, or pack with fiber insulations.

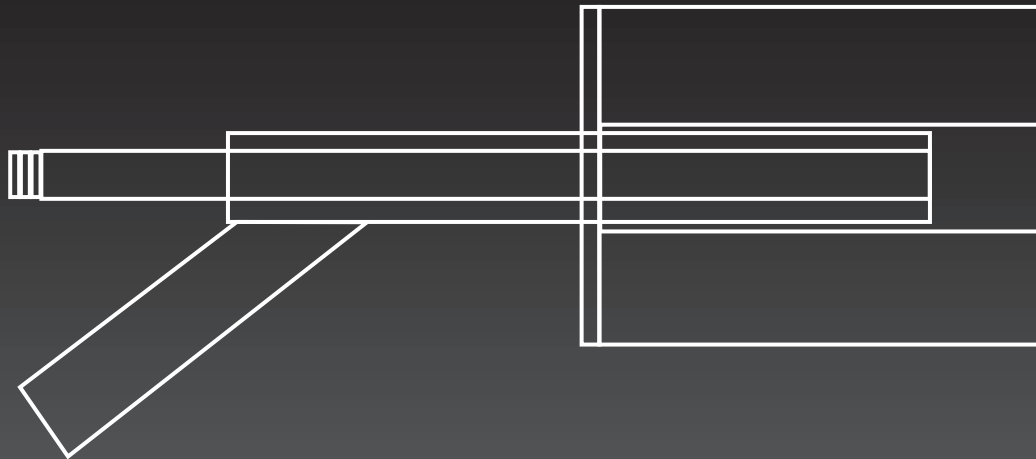
For hot installations, preheat the block (if possible) and slowly slide into the burner opening.

If the FORCE burner will be out of service for an extended period, the burner should be removed from the block. Fiber insulation should be placed in the burner block opening to prevent stingout.

If the FORCE will be out of service intermittently or for a short period of time, provide cooling air to the burner tip. This can be accomplished by using a 3-way ball valve located immediately upstream of the burner connection.

ALWAYS support burner piping to prevent excessive weight and angular forces from putting undue stress on the burner.

*Note: Compressed air should not be used as a cooling source since it contains moisture and oils, which will contaminate the burner lines. Fan air is a good source for burner cooling.*



- ✓ Burner can mount with the oxygen inlet in the top, bottom, left or right positions.
- ✓ Flame velocities allow for use in an all oxy-fuel furnace arrangement or as a boost burner in an air-fuel furnace.
- ✓ Lowest capital cost of all major oxy-gas burners.
- ✓ Burner can be sold with or without a refractory block.
- ✓ Custom block shapes and materials can be accommodated.
- ✓ Unique mounting arrangement can be accomplished.

*To discuss specific  
applications and needs  
call 765.622.9900*

