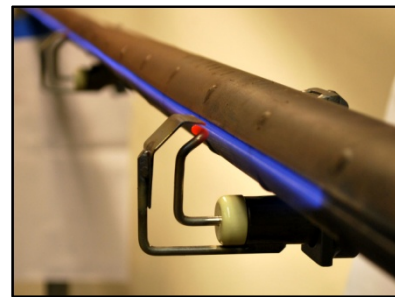


SmartSpark™ Burner Ignition & Flame Sensing

Banner-Day, a leader in oven performance optimization and combustion technology developed the **SmartSpark™** light/sense ignitor to provide highly reliable burner ignition and flame detection on ribbon burners used in conveyor ovens.

SmartSpark™ is a versatile conveyor oven burner enhancement with a robust design that can be incorporated into both new OEM ovens and retrofit of existing installations.

- **SmartSpark™ utilizes the existing conveyor oven spark ignition**
- Requires no additional oven modification when replacing or retrofitting existing burners
- Easy to install



As the next generation in burner ignition and flame detection for conveyor ovens, **SmartSpark™** complies with NFPA regulations here in the United States and regulations in locations that require opposite side flame sensing such as Canada, Mexico, Europe and other markets.

The value of this feature is that bakers in locations that require opposite side flame sensing can provide the needed safety while gaining increased burner reliability, temperature management and greatly reduced maintenance in their ovens.

A regular challenge by bakers using conveyor ovens has been the general lack of reliability of the burner operation. Faced with burners that are as long as 240" it is very important that the burners light consistently throughout the operation of the oven. Historically they have not. When trying to understand this difficulty it's important to recognize the burner depends on the ignitor/sensor system for reliable burner ignition. The current ignitor/sense design as it is installed at the ends of the burners has two flaws. First they do not maintain a consistent spark gap which contributes to the failure to light and second because of placement and length of the burner, frequently the sensor doesn't sense the flame within the "timed trial" for ignition fixed by code (NFPA), and shuts down the burner.

Understanding these challenges with burner performance and building on its success with their ignitor for tray and tunnel ovens, Banner-Day designed an ignitor/sensor system, **SmartSpark™** that virtually eliminates this performance concern. With the Banner-Day design, the ignitor and sensor are set with a proper gap (sparks to itself) and because they are fixed to the burner and move with the burner, the gap remains unchanged throughout operation. The ignitor and sensor maintain the same relationship with the burner whether they are hot or cold. In addition, because of the unique mounting capability, the **SmartSpark™** ignitor and sensor can be

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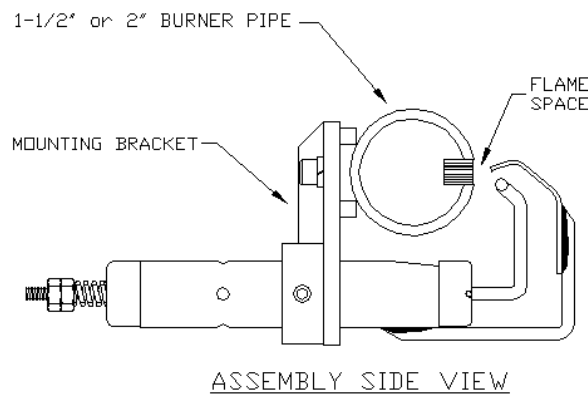
installed up to 25% closer to each other while remaining within code; thus reducing the concern that the flame will not be sensed within the time allotted by code requirements.

So why is this important? The value of this ignitor/sensor system is in providing the baker with consistent heat management through effective and reliable burner control which translates to consistent product quality and improved production performance. You no longer have to worry about burners going out that in turn cannot be adjusted without shutting down the oven. With **SmartSpark™** installed, set and forget. They can run weeks to months without having a flame failure because of ignitor or sensor problems. **SmartSpark™** takes the unpredictability variable of a conventional ignitor and sensor and makes them constant while you bake high quality product each and every day through consistent heat and reliable burner operation.

In the past the baker had to plan for burners being out, heat inconsistencies and marginal quality. With **SmartSpark™**, that's no longer the case. Because the burners always light and stay lit, you can now manage your production to get increased throughput (added production) or adjust your shifts so you get the same production in less time. In addition you can put your resources on other more critical preventative maintenance needs with the confidence that your ignitors and sensors will perform reliably.

Conveyer ovens producing full lines of buns require multiple changes in recipes to accommodate the rigorous baking schedule and need a reliable ignitor/sensing system to accommodate the demands of the bakery while insuring the highest quality product. The diagram below shows the rugged construction that makes **SmartSpark™** so reliable.

SmartSpark™ Ignitor/Sensor with Bracket



This Stainless Steel Rectification Ignitor/Sensor is specifically designed to provide highly reliable burner ignition and flame sensing when used in a Conveyor type oven. It is designed to be used at the far end of the burner to detect the flame and on the infeed end of the burner to ignite the flame. As an ignitor, it sparks to itself, directs the fuel to the ignition point and provides minimum capacitive load on the ignition system. As a flame sensor it captures the flame and provides the maximum amount of flame signal to keep the burner solenoid valve open. It is simple to install and maintain and its adjustment is less critical under adverse operating conditions.

At the Lighting End:

Used as an Ignitor, the spark gap is preset within the ignitor itself. When the end of the ignitor is presented with fuel, the burner will always light. The rectification cup channels the fuel to the ignition point.

At the Sensing End:

Used as a Sensor, the design allows independent adjustment of the rectification gap and provides a favorable rectification environment through all rates of fire.

SmartSpark™ works consistently and reliably with improved results being obtained when the ignitor and flame sensor are moved toward each other as allowable by code. When positioned in this manner **SmartSpark™** has flame sensing response comparable to near side sensing and meets all operational standards.

For additional information or assistance with your specific application visit our website www.banner-day.com or call us at (989) 755-0584.

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