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AMECA 423

AMECA Thermocouple User Manual

Model: 423

1. Product Overview

The AMECA Thermocouple, Model 423, is a critical component designed for precise temperature sensing in various commercial cooking appliances. This 1980 Series Snap Fit 18-inch thermocouple provides a 20-30 mV output, ensuring accurate temperature regulation and safety. It is compatible with a wide range of equipment from leading manufacturers.



Image 1.1: Components of the AMECA Thermocouple, showing the coiled copper tubing, various brass and metal fittings, and the sensor probe. These parts work together to measure and transmit temperature data.

2. Specifications

Manufacturer	AMECA
Part Number	423
Type	1980 Series Snap Fit Thermocouple
Length	18 inches
Output Voltage	20-30 mV
ASIN	B0F1D3MNHC

3. Compatibility

This thermocouple is designed for compatibility with a range of commercial kitchen equipment. Please verify your appliance's specific part requirements before installation.

- **AMERICAN PERMANENT WARE:** Griddle models GGM, GGT
- **COMSTOCK CASTLE:** Oven models C, D, F, K (Bake, Barbeque & Pizza Ovens)
- **DYNAMIC COOKING SYSTEMS:** All Oven models
- **GARLAND:** Broiler models 6-40/50S, 7-40/50S, 8-40/50S, 60-40/50R; Oven Series H281, P280 (Standard Oven from 03/99 in Canada only); Range G20-SPH
- **STAR FRYER:** Models M14, MI4 (D,DL), M18, MI8(D,DL), M43, 215B, 216, 403, 404
- **US RANGE:** Oven model P-4-20
- **WOLF:** Oven models CH, CHSSD, R

4. Setup and Installation

Installation should be performed by a qualified technician. Always disconnect power to the appliance before beginning any installation or maintenance procedures.

1. **Safety First:** Ensure the appliance is completely powered off and cooled down. Locate the existing thermocouple or the designated installation point.
2. **Remove Old Thermocouple (if applicable):** Carefully disconnect the old thermocouple from the gas valve and remove its sensing tip from the pilot assembly or burner area. Note the routing of the old thermocouple for proper installation of the new one.
3. **Install New Thermocouple:** Insert the new thermocouple's sensing tip into the pilot light flame path or designated burner location. Ensure it is securely fastened and positioned correctly to be enveloped by the pilot flame.
4. **Connect to Gas Valve:** Route the thermocouple wire to the gas valve. Connect the thermocouple's threaded end to the appropriate port on the gas valve. Tighten securely but do not overtighten, as this can damage the connection.
5. **Check for Leaks:** After installation, turn on the gas supply and check all connections for leaks using a gas leak detector solution. Do not use an open flame.
6. **Test Operation:** Restore power to the appliance and test its operation to ensure the thermocouple is functioning

correctly and the pilot light remains lit, allowing the main burner to ignite.

5. Operating Principles

A thermocouple operates on the Seebeck effect, generating a small voltage when its two dissimilar metal junctions are exposed to different temperatures. In a gas appliance, one junction (the hot junction) is placed in the pilot flame, while the other (cold junction) is at the gas valve connection. The voltage produced signals the gas valve to remain open, allowing gas flow to the main burner. If the pilot flame extinguishes, the thermocouple cools, the voltage drops, and the gas valve closes, preventing unburnt gas from accumulating.

6. Maintenance

Regular inspection of the thermocouple can help prevent operational issues and extend its lifespan.

- **Visual Inspection:** Periodically check the thermocouple tip for carbon buildup or corrosion. A clean tip ensures proper heat transfer and voltage generation.
- **Connection Check:** Ensure the connection to the gas valve is secure and free from corrosion. A loose or corroded connection can interrupt the millivolt signal.
- **Pilot Flame Position:** Verify that the pilot flame consistently envelops the thermocouple tip. An improperly positioned or weak pilot flame can cause intermittent operation.
- **Cleaning:** If carbon buildup is present, gently clean the thermocouple tip with a soft brush. Avoid abrasive materials that could damage the tip.

7. Troubleshooting

If your appliance is experiencing issues related to the pilot light or main burner ignition, the thermocouple may be a factor. Here are common troubleshooting steps:

- **Pilot Light Won't Stay Lit:**
  - Ensure the pilot flame is strong and directly hitting the thermocouple tip. Adjust the pilot flame if necessary.
  - Check for a loose or corroded connection at the gas valve. Tighten or clean as needed.
  - Inspect the thermocouple tip for damage or excessive carbon buildup. Clean or replace if necessary.
- **Main Burner Won't Ignite:**
  - Confirm the pilot light is lit and stable.
  - Verify the thermocouple is generating sufficient millivolts. This typically requires a multimeter and should be performed by a qualified technician.
  - Check for obstructions in the gas line or issues with the gas valve itself.
- **Intermittent Operation:**
  - This often indicates a weak thermocouple signal, possibly due to a partially obstructed pilot flame, a loose connection, or a failing thermocouple.

If troubleshooting steps do not resolve the issue, it is recommended to consult a professional appliance technician or contact AMECA support.

8. Warranty and Support

For any questions regarding product compatibility, installation, or troubleshooting, please do not hesitate to contact us. Our team is dedicated to providing prompt assistance to ensure your satisfaction with AMECA products.
Please refer to your purchase documentation for specific warranty terms and conditions. General support inquiries can be directed to the seller or manufacturer's customer service channels.

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