

MIZUDO FDG-CS120BW-NG

User Manual for MIZUDO Natural Gas Tankless Water Heater

Model: FDG-CS120BW-NG

Brand: MIZUDO

1. IMPORTANT SAFETY INFORMATION

Read all instructions thoroughly before installation and operation. Failure to follow these instructions could result in property damage, personal injury, or death.

This appliance must be installed by a qualified professional in accordance with all local codes and regulations.

Safety Features and Protections:

- **Leakage Protection:** System designed to detect and prevent water leaks.
- **IPX4 Waterproof:** Provides protection against splashing water from any direction.
- **Overheat Protection:** Automatically shuts off if water temperature exceeds safe limits.
- **Dry Combustion Protection:** Prevents operation without water flow, protecting the heating element.
- **Anti-scale Design Heating Chamber:** Reduces mineral buildup for extended lifespan.
- **Anti-freezing Protection:** Activates to prevent freezing in cold environments.

Comprehensive Safety Protection



Figure 1: Comprehensive Safety Protection Features. This image displays the various safety mechanisms integrated into the MIZUDO tankless water heater, such as protection against leakage, overheating, dry combustion, and freezing, along with IPX4 waterproofing and an anti-scale heating chamber design.

CSA Authoritative Certification Officially Certified & Trustworthy in Quality



Figure 2: CSA Authoritative Certification. This image highlights the CSA certification, ensuring the product meets North American safety standards.

2. PRODUCT OVERVIEW

The MIZUDO Natural Gas Tankless Water Heater (Gen 2) provides on-demand hot water, eliminating the need for a storage tank. It is designed for indoor installation and offers high efficiency and precise temperature control.



Figure 3: MIZUDO Tankless Water Heater. A front view of the MIZUDO tankless water heater, showcasing its compact design and digital control panel.

Key Features:

- **Upgraded Temperature Control:** Self-modulating system with gas proportional valve, water volume servo, and built-in chip to ensure temperature stability within $\pm 1^{\circ}\text{F}$.
- **High Flow Rate:** Delivers up to 5.1 GPM (Gallons Per Minute) at 120,000 BTU, suitable for 2-3 fixtures simultaneously.
- **Energy Efficiency:** Only consumes gas during use, reducing standby waste and potentially saving up to 20% on gas bills. UEF > 0.81.
- **Durable Heat Exchanger:** Features an oxygen-free copper heat exchanger for efficient heat transfer.



Figure 4: On-Demand Endless Hot Water. This image highlights the 5.1 GPM flow rate and 120,000 BTU heating power, along with CSA certification, ensuring continuous hot water supply.

Main Components:

- **Temperature Control Chip:** Manages and maintains precise water temperature.
- **Water Flow Sensor:** Detects water flow to activate the heating process.
- **Gas Regulating Valve:** Controls gas supply for optimal combustion and temperature.

3 Major Temperature Control Components

Water Temp Fluctuates Slightly **within $\pm 1^{\circ}\text{F}$**

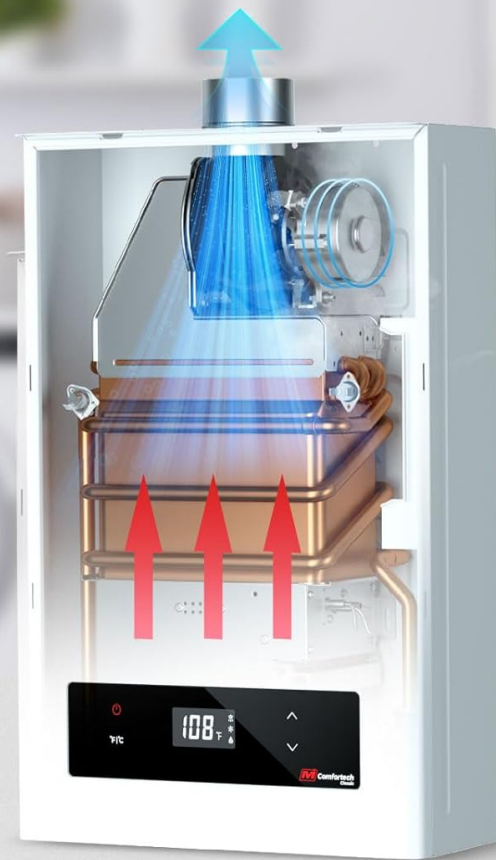


Figure 5: Major Temperature Control Components. An exploded view illustrating the key internal components responsible for precise temperature regulation within the water heater.

3. SETUP AND INSTALLATION

Proper installation is crucial for the safe and efficient operation of your MIZUDO tankless water heater. This unit is designed for **indoor installation only**.

Pre-Installation Checklist:

1. Ensure adequate ventilation and clearance around the unit as per local codes.
2. Verify gas type (Natural Gas) matches your home's supply.
3. Confirm electrical supply is 120V AC, 60 Hz.
4. Prepare 3/4" NPT connectors for water inlet, water outlet, and gas inlet.
5. Acquire necessary accessories not included (e.g., valve kit, vent kit).



Figure 6: Installation Diagram. This diagram illustrates the physical dimensions of the unit (22.76"H x 14.57"W x 7.0"D) and the required connection points for 120V AC power, 3/4" NPT water inlet, water outlet, and gas inlet.

Mounting:

The unit is designed for wall mounting. Use the provided perforated paper as a template for drilling mounting holes. Ensure the mounting surface is structurally sound to support the unit's weight (approx. 29.9 lbs).

Connections:

- **Water Connections:** Connect 3/4" NPT cold water supply to the inlet and hot water line to the outlet.
- **Gas Connection:** Connect 3/4" NPT natural gas line to the gas inlet. Ensure all gas connections are leak-free.
- **Electrical Connection:** Plug the unit into a standard 120V AC, 60 Hz grounded outlet.
- **Ventilation:** Install appropriate venting as required by local codes for natural gas appliances.

4. OPERATING INSTRUCTIONS

The MIZUDO tankless water heater features an intuitive LED screen for control and monitoring.

Initial Startup:

1. Ensure all water and gas connections are secure and leak-free.
2. Open the cold water supply valve to the unit.
3. Open a hot water faucet in your home to purge air from the water lines. Close the faucet once water flows steadily.
4. Turn on the gas supply to the unit.
5. Plug in the power cord. The LED display should illuminate.

Temperature Adjustment:

Use the up and down arrows on the LED control panel to set your desired hot water temperature. The unit will automatically modulate gas and water flow to maintain this temperature.

Normal Operation:

When a hot water faucet is opened, the unit will detect water flow, ignite the burner, and begin heating water on demand. Hot water will be supplied continuously as long as there is sufficient water flow.

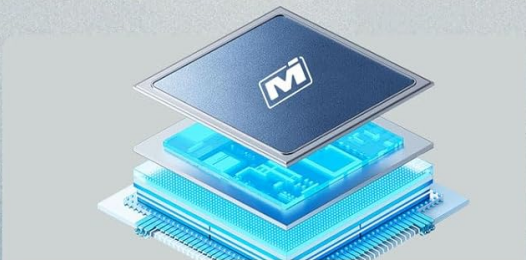


- **Humanized Technology**
- **Enjoy a Comfortable Bath**



Endless Hot Water
24-Hour Uninterrupted

Speedy
Heat Water



±1°F Subtle Temp
Fluctuation

Multipoint
Water Supply



Comprehensive
Security Protection



Figure 7: Humanized Technology and Benefits. This image illustrates the user benefits such as continuous hot water, multipoint water supply capability, and comprehensive security protection, emphasizing the unit's ability to provide a comfortable bathing experience.

Available for Multiple Rooms Intermittent Use of Water at Different Times



Figure 8: Available for Multiple Rooms. This diagram demonstrates the water heater's capacity to supply hot water to multiple fixtures (e.g., bathrooms, kitchen) simultaneously, making it suitable for larger households or businesses.

5. MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your tankless water heater.

Annual Flushing:

It is recommended to flush the unit annually to remove mineral buildup, especially in areas with hard water. This process typically involves:

1. Shutting off power and gas to the unit.
2. Closing water inlet and outlet valves.
3. Connecting a flushing kit (not included) to the service ports.
4. Circulating a descaling solution through the heat exchanger.
5. Rinsing thoroughly with fresh water.

Filter Cleaning:

Check and clean the inlet water filter periodically to prevent debris from entering the unit.

Ventilation Inspection:

Regularly inspect the ventilation system for any obstructions or damage to ensure proper exhaust of combustion gases.

6. TROUBLESHOOTING

This section provides solutions to common issues you might encounter.

Problem	Possible Cause	Solution
No hot water / Unit not igniting	No power, gas supply off, insufficient water flow, clogged filter.	Check power connection, ensure gas valve is open, verify water pressure, clean inlet filter.
Fluctuating water temperature	Inconsistent water flow, mineral buildup in heat exchanger.	Ensure stable water pressure, perform descaling flush.
Low hot water flow	Clogged filter, restricted water lines, multiple fixtures running.	Clean inlet filter, check for kinks in water lines, reduce simultaneous hot water usage.
Error code on display	Specific system malfunction.	Refer to the full user manual (PDF) for specific error code definitions and solutions.

For issues not listed or if troubleshooting steps do not resolve the problem, contact MIZUDO customer support or a qualified technician.

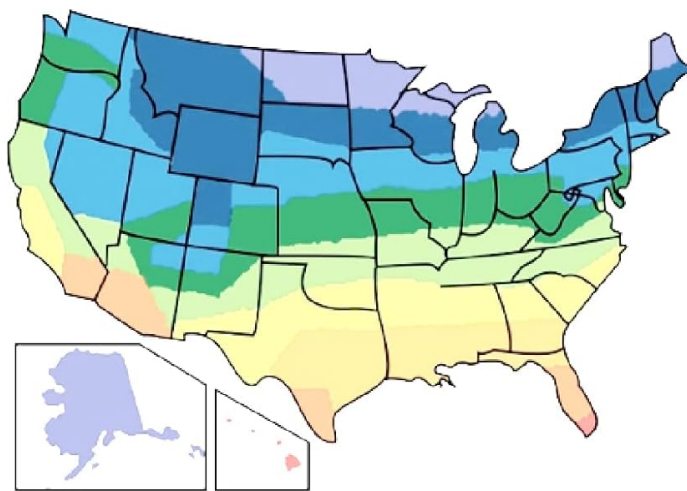
7. SPECIFICATIONS

Detailed technical specifications for the MIZUDO Natural Gas Tankless Water Heater.

Specification	Value
Model Number	FDG-CS120BW-NG
Product Dimensions (W x H x D)	14.57" x 22.76" x 7.0"
Item Weight	29.9 pounds
Power Source	Natural Gas
Voltage	120 Volts (AC)

Specification	Value
Wattage	37 Watt-hours
Maximum Flow Rate	5.1 Gallons Per Minute (GPM)
Heat Output	120,000 BTU
Maximum Operating Pressure	150 PSI
Mounting Type	Wall
Certifications	UL Listed, CSA Certified

Tankless Water Heater Selection Guide



01: Confirming your local water temp

37°F 42°F 47°F 52°F 57°F 62°F 67°F 72°F 77°F

Use your location on the map to correlate with legend for average ground water temperature in the U.S.

02: Knowing the water consumption of water outlets

0.5 GPM 1.2 GPM 2.0 GPM > 4.0 GPM

Bathroom Faucet Kitchen Faucet Standard Shower 80-Gallon Bathtub

03: choosing the suitable unit, based on your household total hot water usage

Power Inlet Temp	80,000 BTU	90,000 BTU	100,000 BTU	120,000 BTU	170,000 BTU
37°F	1.8 GPM 	2.0 GPM 	2.2 GPM 	2.7 GPM 	3.9 GPM
47°F	2.1 GPM 	2.4 GPM 	2.5 GPM 	3.1 GPM 	4.5 GPM
57°F	2.5 GPM 	2.8 GPM 	3.0 GPM 	3.7 GPM 	5.4 GPM
67°F	3.1 GPM 	3.5 GPM 	3.8 GPM 	4.5 GPM 	6.6 GPM
77°F	4.1 GPM 	4.6 GPM 	5.0 GPM 	5.9 GPM 	8.7 GPM

The specified hot water flow rate is based on measurements taken at a set outlet temperature of 110°F

Figure 9: Tankless Water Heater Selection Guide. This guide helps determine the appropriate unit size based on local ground water temperature and desired hot water usage (GPM) for various fixtures.

8. WARRANTY AND SUPPORT

MIZUDO provides comprehensive support for your tankless water heater.

- **Whole Unit Support:** 2-year warranty.
- **Heat Exchanger Support:** 5-year warranty.

For technical assistance, warranty claims, or general inquiries, please contact MIZUDO customer support.

Contact Information:

Phone: (781)-887-0291

Email: service@mizudo.com

Additional resources, including the full PDF user manual, may be available on the official MIZUDO website or through your purchase platform.