



# Descriptive Report and Test Results

**MASTER CONTRACT:** 300253

**REPORT:** 80004231

**PROJECT:** 80004231

**Edition 1:** September 17, 2019; Project 80004231 - Guangzhou  
Issued by Laura Y Li

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## PRODUCTS

2711 81 DOMESTIC GAS COOKING APPLIANCES Certified to US Standards – US Market

2711 01 DOMESTIC GAS COOKING APPLIANCES – Canadian Market

For Use with Natural and Propane Gases  
Built-in Top Surface Cooking Units

| Model no.   | Rating value (Btu/hr) |        |        |       |        |        |        |
|-------------|-----------------------|--------|--------|-------|--------|--------|--------|
|             | LR                    | LF     | CTR    | RR    | RF     | RCTR   | Total  |
| EMPV-30GC20 | 10,200                | 6,000  | 13,000 | 6,000 | 3,800  | --     | 39,000 |
| EMPV-30GC21 | 10,200                | 6,000  | 13,000 | 6,000 | 3,800  | --     | 39,000 |
| EMPV-36GC22 | 6,000                 | 10,200 | 13,000 | 6,000 | 3,800  | --     | 39,000 |
| EMPV-36GC23 | 6,000                 | 10,200 | 13,000 | 6,000 | 3,800  | --     | 39,000 |
| EMPV-36GC24 | 6,000                 | 10,200 | 13,000 | 6,000 | 3,800  | --     | 39,000 |
| EMPV-36GC25 | 6,000                 | 10,200 | --     | 6,000 | 3,800  | 13,000 | 39,000 |
| EMPV-36GC27 | 6,000                 | 3,800  | 13,000 | 6,000 | 10,200 | --     | 39,000 |
| EMPV-30GC26 | 6,000                 | 3,800  | 13,000 | 6,000 | 10,200 | --     | 39,000 |
| EMPV-24GC28 | 6,000                 | 13,000 | --     | 6,000 | 3,800  | --     | 28,800 |

Input: 120V/60Hz,  
Max. Electric Load: 11mA

## APPLICABLE REQUIREMENTS

ANSI Z21.1-2016 / CSA1.1-2016

Household Cooking Gas Appliances

## MARKINGS

The manufacturer is required to apply the following markings:

- Products shall be marked with the markings specified by the particular product standard.
- Products certified for Canada shall have all Caution and Warning markings in both English and French.

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Additional bilingual markings not covered by the product standard(s) may be required by the Authorities Having Jurisdiction. It is the responsibility of the manufacturer to provide and apply these additional markings, where applicable, in accordance with the requirements of those authorities.

The products listed are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US (indicating that products have been manufactured to the requirements of both Canadian and U.S. Standards) or with adjacent indicator 'US' for US only or without either indicator for Canada only.

The manufacturer is required to apply the following markings:

- Products shall be marked with the markings specified by the particular product standard.
- Products certified for Canada shall have all Caution and Warning markings in both English and French.

Additional bilingual markings not covered by the product standard(s) may be required by the Authorities Having Jurisdiction. It is the responsibility of the manufacturer to provide and apply these additional markings, where

#### **Nameplate adhesive label material approval information:**

All markings in compliance with applicable requirements are found on descriptive drawing figure 11 and 12. Rating label is adhesive type for Indoor and Outdoor Use on Metal, Polyester Powder Coat Paint and Epoxy Powder Coat Paint with mx temp. 150°C. Marking systems are supplied by Tianyue, Huizhou Jin Sheng and Zhantu. See components list for detail.

#### **ALTERATIONS**

##### 80004231

- For all models, added isolation sleeve to the high-tension ignition wire to separate them from low-tension wires and comply with section 4.5.5.11 of C22.2 No.3. See Construction review reply for detail..
- For model EMPV-30GC26, EMPV-36GC27 and EMPV-24GC28, shortened the width of cooking grate for 5mm, to keep it further the knobs and comply with section 4.1.11, see Figure 7 page 19 and 20, Figure 8 page 19 and 20, Figure 9 page 17 and 18 for detail.
- For model EMPV-36GC23, changed design of cooking grate to prevent displacement and comply with section 4.1.7. See Figure, Figure for detail. See Figure 4 page 16, 17 and 18 for detail.
- For model EMPV-30GC26, EMPV-36GC27 and EMPV-24GC28, changed the knob material from metal to ABS, to comply with section 5.18 handle temperature test. See Figure 7 page 31, Figure 8 page 31, Figure 9 page 29 for detail.
- Increased the height of cooking grate of model EMPV-36GC23 from 44mm to 47mm, to comply with section 5.4.1 combustion test. See Figure 4 page 16, 17 and 18 for detail
- Increased the height of cooking grate of model EMPV-30GC26, EMPV-36GC27 and EMPV-24GC28 from 42.5mm to 50.5mm, to comply with section 5.4.1 combustion test. See Figure 7 page 19 and 20, Figure 8 page 19 and 20, Figure 9 page 17 and 18 for detail.
- Change the design of cooking grate of model EMPV-24GGC28, to comply with section 5.4.1 combustion test. See Figure 9 page 17 and 18 for detail.
- IM and Markings were modified.

#### **FACTORY TEST**

The submitter shall ensure that the following factory tests are conducted at the frequency specified and the results are documented and made available for review by CSA field services representatives:

##### **Test**

##### **Frequency**

|  |  |
|--|--|
| Test Fire Burner, Manifold & Control Assy. - Proper Operation<br>Pass/Fail Criteria:<br>Top Burner valves shall turn freely<br>The burner flames shall carryover and burn at all ports   | 100%                                   |
| Manifold and Control Assembly – Gas Tightness<br>Pass/Fail Criteria:<br>No leakage shall be observed under 21kPa test pressure   | 100%                                   |
| Dielectric Strength Testing<br>Pass/Fail Criteria:<br>No breakdown under 1200V @ 1 second  | 100%                                   |
| Burner Operating Characteristics<br>Pass/Fail Criteria:<br>The burner shall light without delay<br>The burner flames shall carryover and burn at all ports<br>The burner flames shall not flash back, lift or float<br>Ignition and extinction shall occur without undo noise<br>There shall be no backpressure at the burner mixer face | 1 per 100pcs, not less than 1 per week |
| Ignition Systems and Safety shut off device<br>Pass/Fail Criteria:<br>Burner shall light without delay within 4 seconds<br>Ignition shall occur without undo noise<br>Max. Time off: 90s<br>Conducted @ 85% & 110% rating plate voltage  | 1 per 100pcs, not less than 1 per week |
| Combustion<br>Pass/Fail Criteria:<br>CO shall not exceed 0.08% CO Air Free after 5 minutes<br>under Test Conditions 2 and 3 in Table 1<br>of ANSI Z21.1-2016/CSA1.1-2106   | 1 per 100pcs, not less than 1 per week |
| Burn Hazard Potential and Handle Temperature<br>Pass/Fail Criteria:<br>Burn Hazard – surface temperatures not above Table 12<br>Handle Temps – knob, handles not above Table 13  | 1 per 100pcs, not less than 1 per week |

**SPECIAL INSTRUCTIONS FOR FIELD SERVICES**

1. Component descriptions marked with either the “(INT)” or “(INT\*)” identifiers may be substituted with other components providing the requirements specified under the notes in the “Description” are complied with.
2. Not applicable.

**COMPONENT SPECIAL PICKUP**

1. Component descriptions marked with the identifier “(CT)” are subject to annual pickup and Conformity Testing.
2. Not applicable.

**DISCRIPTION**

Notes:

1. Component Substitution
  - a) Critical components (those identified by mfr name, cat no), which are NOT identified with either "INT" or "INT\*" are not eligible for substitution without evaluation and report updating
  - b) The term "INT" means a "Certified" and/or "Listed" (or a "Recognized" and/or "Accepted") component may be replaced by one "Certified" and/or "Listed" by another certification organization accredited by the appropriate accreditation body or scheme requirements to the correct standard, for the same application; providing the applicable country identifiers are included and requirements in item "d" below are complied with.
  - c) The Term "(INT\*)" means a "Recognized" and/or "Accepted" component may be replaced by a component that is CSA Certified. The applicable country identifiers shall be included, the requirements in item "d" below as well as any "conditions of suitability" for the component (as recorded in this descriptive report) shall be complied with;
  - d) Components which have been substituted, must be of an equivalent rating, configuration (size, orientation, mounting) and the applicable minimum creepage and clearance distances are to be maintained from live parts to bonded metal parts and secondary parts.
  - e) Substitution of a "Certified" and/or "Listed" component with a component that is "Recognized" or "Accepted" is not permitted without evaluation and report updating.
  - f) Substitution of a "Recognized" and/or "Accepted" component by one that is not CSA Certified is not permitted without a proper evaluation as well as a report update because the Conditions of Acceptance of the original component may be different than the Conditions of Acceptance of the substitute component.

**MODEL NUMBER BREAKDOWN**

**Model Nos.**

EMPV-24/30/36/GC/20/21//22/23/24/25/26/27/28

EMPV - Company name  
 24/30/36 – Length of exterior surface  
 GC – Submitter’s defination  
 22 to 28 – Series sequence

**CLEARANCES**

Clearance to vertical combustible surfaces as follows:

Below cooking top: 0 inch  
 Above cooking top:  
     Left Side: 4 inch  
     Right Side: 4 inch  
     Rear: 4 inch  
     Front: 3 inch

Cabinets 13 in. deep and not less than the nominal width of the appliance must be installed at least 30 in. above the cooking surface.

Cabinets 13 in. deep may be installed on both sides of the appliance with the bottom of the cabinets at least 18 in. above the plane of the cooking surface.

**ELECTRICAL RATING**

Input: 120V/60Hz  
 Max. Electric Load: 11mA

**GAS PRESSURES**

**Manifold Pressure**

**Inlet Pressures**

|              |            |            |
|--------------|------------|------------|
| Natural Gas: | 4.0 in wc  | 7.0 in wc  |
| Propane Gas: | 10.0 in wc | 11.0 in wc |

**INPUT RATINGS BTU/HR AND ORIFICE SIZE**

| Model no.           | --      | LR     | LF     | CTR    | RR    | RF    | RCTR   |
|---------------------|---------|--------|--------|--------|-------|-------|--------|
| <b>EMPV-30GC20</b>  |         |        |        |        |       |       |        |
| Main Burner(Btu/hr) | --      | 10,200 | 6,000  | 13,000 | 6,000 | 3,800 | --     |
| Orifice Size(mm)    | Propane | 0.96   | 0.76   | 1.10   | 0.76  | 0.60  | --     |
|                     | NG      | 1.57   | 1.16   | 1.68   | 1.16  | 0.91  | --     |
| <b>EMPV-30GC21</b>  |         |        |        |        |       |       |        |
| Main Burner(Btu/hr) | --      | 10,200 | 6,000  | 13,000 | 6,000 | 3,800 | --     |
| Orifice Size(mm)    | Propane | 0.96   | 0.76   | 1.10   | 0.76  | 0.60  | --     |
|                     | NG      | 1.57   | 1.16   | 1.68   | 1.16  | 0.91  | --     |
| <b>EMPV-36GC22</b>  |         |        |        |        |       |       |        |
| Main Burner(Btu/hr) | --      | 6,000  | 10,200 | 13,000 | 6,000 | 3,800 | --     |
| Orifice Size(mm)    | Propane | 0.76   | 0.96   | 1.10   | 0.76  | 0.60  | --     |
|                     | NG      | 1.16   | 1.57   | 1.68   | 1.16  | 0.91  | --     |
| <b>EMPV-36GC23</b>  |         |        |        |        |       |       |        |
| Main Burner(Btu/hr) | --      | 6,000  | 10,200 | 13,000 | 6,000 | 3,800 | --     |
| Orifice Size(mm)    | Propane | 0.76   | 0.96   | 1.10   | 0.76  | 0.60  | --     |
|                     | NG      | 1.16   | 1.57   | 1.68   | 1.16  | 0.91  | --     |
| <b>EMPV-36GC24</b>  |         |        |        |        |       |       |        |
| Main Burner(Btu/hr) | --      | 6,000  | 10,200 | 13,000 | 6,000 | 3,800 | --     |
| Orifice Size(mm)    | Propane | 0.76   | 0.96   | 1.10   | 0.76  | 0.60  | --     |
|                     | NG      | 1.16   | 1.57   | 1.68   | 1.16  | 0.91  | --     |
| <b>EMPV-36GC25</b>  |         |        |        |        |       |       |        |
| Main Burner(Btu/hr) | --      | 6,000  | 10,200 | --     | 6,000 | 3,800 | 13,000 |

|                     |         |       |        |        |       |        |      |
|---------------------|---------|-------|--------|--------|-------|--------|------|
| Orifice Size(mm)    | Propane | 0.76  | 0.96   | --     | 0.76  | 0.60   | 1.10 |
|                     | NG      | 1.16  | 1.57   | --     | 1.16  | 0.91   | 1.68 |
| <b>EMPV-36GC27</b>  |         |       |        |        |       |        |      |
| Main Burner(Btu/hr) | --      | 6,000 | 3,800  | 13,000 | 6,000 | 10,200 | --   |
| Orifice Size(mm)    | Propane | 0.76  | 0.60   | 1.10   | 0.76  | 0.96   | --   |
|                     | NG      | 1.16  | 0.91   | 1.68   | 1.16  | 1.57   | --   |
| <b>EMPV-30GC26</b>  |         |       |        |        |       |        |      |
| Main Burner(Btu/hr) | --      | 6,000 | 3,800  | 13,000 | 6,000 | 10,200 | --   |
| Orifice Size(mm)    | Propane | 0.76  | 0.60   | 1.10   | 0.76  | 0.96   | --   |
|                     | NG      | 1.16  | 0.91   | 1.68   | 1.16  | 1.57   | --   |
| <b>EMPV-24GC28</b>  |         |       |        |        |       |        |      |
| Main Burner(Btu/hr) | --      | 6,000 | 13,000 | --     | 6,000 | 3,800  | --   |
| Orifice Size(mm)    | Propane | 0.76  | 1.10   | --     | 0.76  | 0.60   | --   |
|                     | NG      | 1.16  | 1.68   | --     | 1.16  | 0.91   | --   |

**COMPONENTS LIST**

| <u>TYPE OF CONTROL</u> | <u>MFR. OF CONTROL</u>                      | <u>MFR. NO.</u>                | <u>NATURAL GAS</u> | <u>PROPANE</u> |
|------------------------|---|--------------------------------|--------------------|----------------|
| <b>Manual Valve</b>    | Guangdong Chant Group Inc.                  | DK-890D-A5 (CSA1628500)        | X                  | X              |
|                        | Zhongshan Leetron Gas Appliance Co., Ltd.   | SAC190A (CSA 1769699)          | X                  | X              |
| <b>Pulse Ignitor</b>   | Yangzhou Java Electric Co., Ltd.            | DST2010 (CSA2282578)           | X                  | X              |
|                        | Yangzhou Baoamac Electronic Co, Ltd.        | FIGOV001-9(CSA 1997335)        | X                  | X              |
| <b>Electrode</b>       | Yangzhou Fine Electrictechnology Co., Ltd.  | DG94-00633A (CSA 1613039)      | X                  | X              |
|                        | Yangzhou Baoamac Electronic Co, Ltd.        | CE017002/CB06407 (CSA 1997335) | X                  | X              |
| <b>Ignition Wire</b>   | Jiangsu Haosi Electrical Technology Co.,Ltd | 1332 (UL E 357991)             | X                  | X              |
|                        | YANG ZHOU DE YOU WIRE & CABLE CO LTD        | 1332 (UL E 318368)             |                    |                |

|                                |  |  |   |   |
|--------------------------------|--|--|---|---|
| <b>Thermocouple</b>            | Ninghai Aokai Security Technology Co., Ltd             | HC-10L25-2 (CSA 1976976)   | X | X |
| <b>Gas appliance regulator</b> | Ningbo Laite Gas Stoves Co.,Ltd                        | JY120NP (CSA 2672348)  | X | X |
|                                | Yung Shen Gas Appliance Co.,Ltd                        | 7010 (CSA 1755753)   | X | X |
| <b>Supply Cord</b>             | Zhongshan Guzhen Hongli Coble& Appliance Co., Ltd      | HL-8/HL-8-01 (UL E213965SP)  |   |   |
|                                | Kai Hua (Foshan Shunde) Electric Appliance Co Ltd      | KH-9922A/KH-9922S (UL E254267)   |   |   |
|                                | Zhongshan City Shengbao Electric Co.,Ltd               | SB-U301 (UL E465708)   |   |   |
| <b>Interior Wire</b>           | Shenzhen Mysun Insulation Materials Co., Ltd.          | 3122(UL E239689)   |   |   |
|                                | Jiangyin Zhijun Appliance Electric Cable & Wire Co Ltd | 3122(UL E301946)   |   |   |
|                                | Foshan Shunde Datao Electric Appliances Co Ltd         | 3122 (UL E326024)  |   |   |
|                                | Foshan Shunde Yuancheng Electric Co Ltd                | 3122 (UL E343433)  |   |   |
| <b>Strain Relief</b>           | Heavy Power Co Ltd.                                    | 5N-4 (UL E107293)  |   |   |
| <b>Wire connector</b>          | Heavy Power Co., Ltd                                   | CE2/CE2X (UL E113650)  |   |   |
|                                | Shenzhen Hongyu Electronics Co Ltd                     | CE2/CE2X (UL E314734)  |   |   |
| <b>Sleeve for terminators</b>  | Changyuan Electronics(Shenzhen) Co., Ltd               | CB -TT-S (UL E180908)  |   |   |
|                                | Dongguan SALIPT Co., Ltd                               | R (UL E209436)   |   |   |
| <b>Label Material</b>          | Tianyue  | TY869-150 (UL MH25987)<br>TY968-125 (UL MH25987)<br>TY56A-125 (CSA 70044611) |   |   |
|                                | Huizhou Jin Sheng                                      | JS-001 (UL MH48219)  |   |   |

Zhantu

ZT969-2 (UL MH47528)

| <b>FIGURE NO.</b> | <b>INDEX<br/>DESCRIPTION</b> |
|-------------------|------------------------------|
|-------------------|------------------------------|

Project 80004231

**Drawings**

- |    |                                       |
|----|---------------------------------------|
| 1. | EMPV-30GC20 drawings, total 36 pages. |
| 2. | EMPV-30GC21 drawings, total 36 pages. |
| 3. | EMPV-36GC22 drawings, total 38 pages. |
| 4. | EMPV-36GC23 drawings, total 38 pages. |
| 5. | EMPV-36GC24 drawings, total 37 pages. |
| 6. | EMPV-36GC25 drawings, total 38 pages. |
| 7. | EMPV-36GC27 drawings, total 43 pages. |
| 8. | EMPV-30GC26 drawings, total 43 pages. |
| 9. | EMPV-24GC28 drawings, total 40 pages. |

**Instruction Manuals and Markings**

- |     |  |
|-----|--|
| 10. | Instruction Manual for all models, EN&FR |
| 11. | Markings for all models, EN&FR           |
| 12. | Markings for conversion kit, EN&FR       |
| 13. | Guarantee Letter for translation         |

Mfr's tolerances were not observed.

**TEST HISTORY**

Project 80004231

This project is an original certification of 9 models of Built-in Top Surface Cooking Units model no. EMPV-24GC28, EMPV-30GC20, EMPV-30GC21, EMPV-30GC26, EMPV-36GC22, EMPV-36GC23, EMPV-36GC24, EMPV-36GC25, EMPV-36GC27 per standard ANSI Z21.1-2016 / CSA1.1-2016, for Natural Gas and Propane.

All models are shipped with Natural Gas setting and a Propane conversion kit is supplied separately.

The top burners are controlled by manual valves and ignited by pulse ignition device.  
All the burners with same rating value are identical.  
No work burner and Griddle burner exist.

The following tests were conducted in:  
CCIC-CSA International Certification Co. Ltd.  
Guangzhou Science Park Lab, No. 10, Ke Yan Rd.,  
Science Park of Guangzhou,  
Guangdong,  
CHINA 510000

Tests Data stored in Documentum.



ANSI Z21.1-2016 / CSA1.1-2016

Household Cooking Gas Appliances

The following tests were conducted on model EMPV-30GC20, EMPV-36GC23, EMPV-36GC25, EMPV-30GC26, EEMPV-24GC28 and satisfactory results were found.

#### **Section 4 Construction**

#### **Section 5 Performance**

- 5.1 General
- 5.2 Test gases
- 5.3 Test pressures and burner adjustments
- 5.4 Combustion
- 5.5 Burner and pilot operating characteristics
- 5.6 Top surface cooking section burner lighters
- 5.7 Ignition systems
- 5.8 Piloted ignition systems – NA, None.
- 5.9 Direct ignition systems
- 5.10 Proved igniter systems
- 5.11 Manual gas valves – NA, certified types.
- 5.12 Gas appliance pressure regulators – NA, certified types.
- 5.13 Automatic valves – NA, none.
- 5.14 Broiler temperature – NA, None.
- 5.15 Broiler operation – NA, None.
- 5.16 Evaluation of clothing ignition potential
- 5.17 Evaluation of burn hazard potential of exterior surfaces
- 5.18 Temperatures off handles, knobs, and touchpads
- 5.19 Wall, floor, and enclosure temperatures
- 5.20 Abnormal operation stalled-fan test – NA, None.
- 5.21 Flue gas temperature – NA, None.
- 5.22 Draft hoods – NA, None.
- 5.23 Exhaust hood outlet air temperature – NA, None.
- 5.24 Oven flue discharge temperatures – NA, None.
- 5.25 Performance of appliances provided with pyrolytic self-cleaning oven or self-cleaning broiler features – NA, None.
- 5.26 Performance of an appliance incorporating a microwave cooking section – NA, None.
- 5.27 Marking material adhesion and legibility – NA, certificated types.
- 5.28 Safety circuit analysis – NA, None.
- 5.29 Performance of appliances intended to be utilized with ventilation systems that direct air in a downward direction – NA, None.

#### **Section 6 Manufacturing and production tests**

##### Construction Review:

Construction review performed with satisfactory results.

This Edition supersedes all previous editions.

- End of report -

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