



# 温州瀚精电子有限公司

WENZHOU HANJING ELECTRONIC CO., LTD.

## 承 認 書

PRODUCT APPROVAL SHEET

产品名称 PRODUCT Name : 轻触开关

规格型号 PART NO : 6.5\*6.5 硅胶贴片

物料号 PART NO : TS-F011\*\*\*

|                                                   |                                                  |                                                   |                                                                                      |
|---------------------------------------------------|--------------------------------------------------|---------------------------------------------------|--------------------------------------------------------------------------------------|
| 制表/DESIGNED BY<br><br>吴永余<br><br>DATE 日期 20201117 | 校对/CHECKED BY<br><br>吴永友<br><br>DATE 日期 20201117 | 审核/APPROVED BY<br><br>张 鹏<br><br>DATE 日期 20201117 |  |
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贵司承认栏 APPROVAL SIGNATURE

贵司名称/CUSTOMER NAME: \_\_\_\_\_

贵司物料名称/CUSTOMER TYPE: \_\_\_\_\_

贵司物料号/CUSTOMER NO: \_\_\_\_\_

请于\_\_\_\_\_年\_\_\_\_\_月\_\_\_\_\_日前承认返 日期 DATE: \_\_\_\_\_

PLEASE RETURN TO US AFTER CONFIRMED! THANK YOU!



WENZHOU HANJING ELECTRONICS CO., LTD.

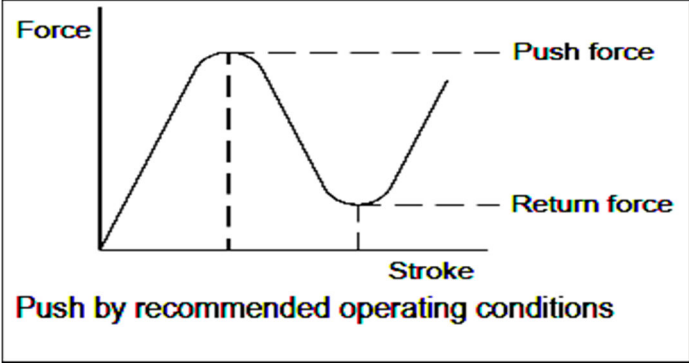
地址: 浙江省乐清市虹桥镇幸福东路 1280 号

Add: NO. 1280 XINGFU EAST ROAD HONGQIAO TOWN YUEQING CITY ZHEJIANG PROVINCE

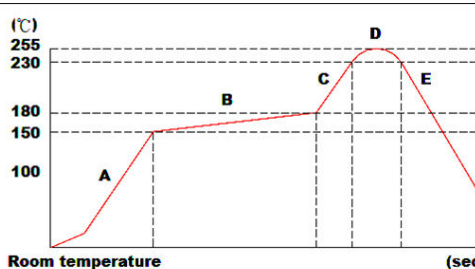
电话(Tel): 0577-62317178 传真(Fax): 0577-62311178 <http://www.wzhjele.com>

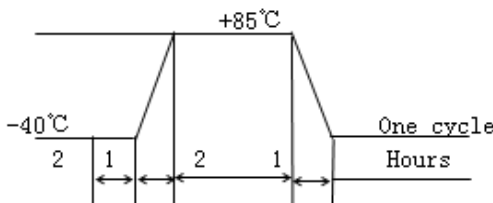
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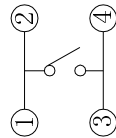
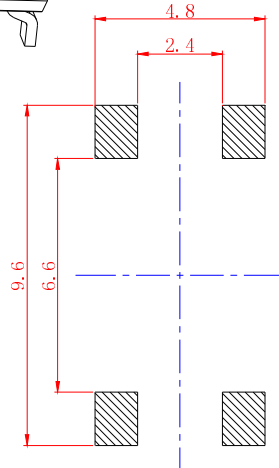
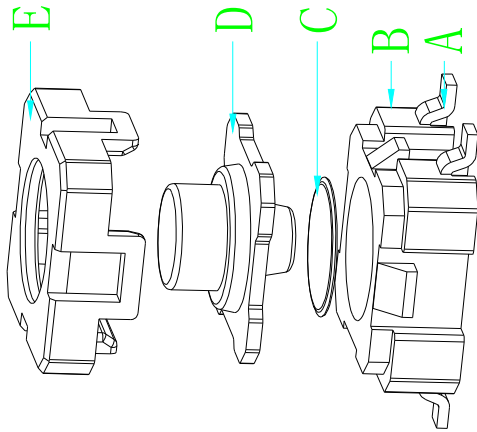
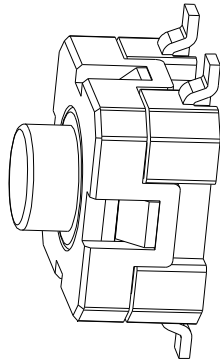
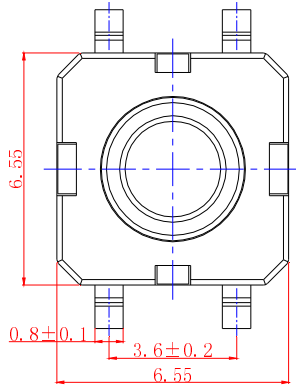
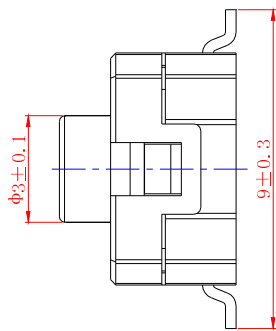
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| WENZHOU HANJING ELECTRONICS CO., LTD.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |            |      | 产品系列  | 轻触开关        |
| TACT SWITCH SPECIFICATION<br>轻触开关产品承认书                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |            |      |       |             |
| <p>1、概述 GENERAL</p> <p>1.1 适用范围 APPLICATION</p> <p>此规格书适用于机械式轻触开关的相关要求</p> <p>This specification is applied to the requirements for TACTILE SWITCH(MECHANICAL CONTACT)</p> <p>1.2 工作温度范围</p> <p>Operating Temperature Range</p> <p>-20℃~70℃ (在标准大气压、标准温度条件下)</p> <p>-20℃~70℃ (Normal humidity, normal air pressure)</p> <p>1.3 贮藏温度范围</p> <p>Storage Temperature Rane</p> <p>-40℃~85℃ (在标准大气压、标准温度条件下)</p> <p>-40℃~85℃ (Normal humidity, normal air pressure)</p> <p>1.4 测试条件</p> <p>Test Conditions</p> <p>在没有其它特定的条件下，应该在以下的条件下进行测试和测量：</p> <p>Unless otherwise specified, tests and measurement shall be made in the following standard conditions</p> <p>常温.....5℃~35℃</p> <p>Normal temperature.....5℃~35℃</p> <p>标准湿度.....相对湿度 45%~85%</p> <p>Normal humidity.....relative humidity 45%~85%</p> <p>标准大气压.....86KPa~106 KPa</p> <p>Normal air pressure.....86KPa~106 KPa</p> <p>在制造过程中，测试和测量应该在以下的条件下进行：</p> <p>If any doubt arise from the judgment, tests shall be conducted at the following conditions</p> <p>温度.....20℃±2℃</p> <p>Temperature.....20℃±2℃</p> <p>相对湿度.....65%±5%</p> <p>Relative humidity.....65%±5%</p> <p>环境气压.....86KPa~106 KPa</p> <p>Air pressure.....86KPa~106 KPa</p> <p>2、详细说明 Detailed specification</p> <p>2.1 外观：应无影响、降低产品性能的缺陷</p> <p>Appearance:There should be no defects that affect the serviceability of product.</p> <p>2.2 结构尺寸和安装尺寸：应符合装配图要求</p> <p>Style and dimension:shall conform to the assemble drawings.</p> |            |      |       |             |
| ISSUE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | DATE       | WRTN | CHKD  | Page 2 of 7 |
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| WENZHOU HANJING ELECTRONICS CO., LTD.                                                                                                                                                                                                                            |            |                                                                                      | 产品系列  | 轻触开关        |
| TACT SWITCH SPECIFICATION<br>轻触开关产品承认书                                                                                                                                                                                                                           |            |                                                                                      |       |             |
| 2.3 操作形式：有触觉反应的操作<br>Type of actuating:Tactile feedback.<br>2.4 开关结构：单回路输出（具体的触点结构在装配图中已绘出）<br>Contact arrangement:1 pole,1 throw(Details of contact arrangement are given in the assembly drawings.)<br>2.5 开关工作额定值：DC16V 50mA<br>Ratings: DC16V 50mA           |            |                                                                                      |       |             |
| 测试项目 TEST ITEM                                                                                                                                                                                                                                                   |            |                                                                                      |       |             |
| 3. 电器性能 ELECTRICAL PERFORMANCE                                                                                                                                                                                                                                   |            |                                                                                      |       |             |
| 3-1 接触电阻 CONTACT RESISTANCE<br>在 1kHz 小电流电压（50mA，20mV）下测量。<br>Being tested at 1kHz small current and voltage (50mA，20mV) by contact resistance meter.<br>100 毫欧以下。<br>100mΩ max.                                                                                 |            |                                                                                      |       |             |
| 3-2 绝缘电阻 INSULATION RESISTANCE<br>在端子之间和端子与壳之间加 DC250V 条件下，持续 1 分钟测量。<br>DC 250v shall be applied for test between terminals and between terminals and frame for one minute.<br>100 兆欧以上。<br>100MΩ min.                                                          |            |                                                                                      |       |             |
| 3-3 耐电压 WITHSTAND VOLTAGE<br>在端子之间和端子于壳之间加 AC250V（50Hz 或 60Hz）感应电流 1mA 条件下，持续 1 分钟测量。<br>AC 250V and induction current 1mA shall be applied for test between terminals and between terminals and frame for one minute.<br>无击穿现象。<br>There shall be no breakdown. |            |                                                                                      |       |             |
| 4. 机械性能 MECHANICAL PERFORMANCE                                                                                                                                                                                                                                   |            |                                                                                      |       |             |
| 4-1 动作力 OPERATING FORCE<br><br>400±100g                                                                                                                                                                                                                          |            |  |       |             |
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| WENZHOU HANJING ELECTRONICS CO., LTD.                                                                                                                                                                                                                                                               |            |      | 产品系列  | 轻触开关        |
| TACT SWITCH SPECIFICATION<br>轻触开关产品承认书                                                                                                                                                                                                                                                              |            |      |       |             |
| 4-2 行程 TRIP<br>给开关施加动作力 2 倍不变的力，开关停止时的移动距离。<br>The force exerted 2 times the constant force on the switch and the moving distance at the switch stop.<br>0.9±0.3mm                                                                                                                                  |            |      |       |             |
| 4-3 手感值 HAND VALUE<br>开关按力减去回弹力的差值所占开关按力的百分比 Hand value: 30-70%<br>Percentage of switching pressures by the difference of switching pressures minus resilience。<br>手感值: 30-70%                                                                                                                      |            |      |       |             |
| 4-4 端子强度 TERMINAL STRENGTH<br>一个 300 克之静负荷施加端子顶部的一个方向持续 1 分钟。<br>A static force of 300g being applied in one direction on the tip of the terminal for 1 minute.<br>无任何迹象显示机械及电器性能之损坏。<br>There shall be of mechanical and electrical damage.<br>There shall be of mechanical and electrical damage. |            |      |       |             |
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| WENZHOU HANJING ELECTRONICS CO., LTD.                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                  | 产品系列                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 轻触开关             |             |                  |                          |            |   |          |  |  |   |           |        |                  |   |           |  |  |   |                 |                    |                |   |           |  |              |
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| TACT SWITCH SPECIFICATION<br>轻触开关产品承认书                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                  |             |                  |                          |            |   |          |  |  |   |           |        |                  |   |           |  |  |   |                 |                    |                |   |           |  |              |
| 5. 耐久性 DURABILITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                  |             |                  |                          |            |   |          |  |  |   |           |        |                  |   |           |  |  |   |                 |                    |                |   |           |  |              |
| 5-1 可焊性试验 SOLDERING TEST                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                  |             |                  |                          |            |   |          |  |  |   |           |        |                  |   |           |  |  |   |                 |                    |                |   |           |  |              |
| <p>端子顶部被侵入锡池 0.5mm 深，温度 260±5℃，时间 3 秒。</p> <p>The tip of the terminal shall be dipped 0.5mm in the solder bath within temperature of 260±5℃ for 3s.</p> <p>侵入的部分 95%以上表面将被锡覆盖</p> <p>Over 95% of the immersed surface was covered by tin .</p>                                                                                                                                                                                                                                          |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                  |             |                  |                          |            |   |          |  |  |   |           |        |                  |   |           |  |  |   |                 |                    |                |   |           |  |              |
| 5-2 耐焊性试验 SOLDERING RESISTANT TEST                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                  |             |                  |                          |            |   |          |  |  |   |           |        |                  |   |           |  |  |   |                 |                    |                |   |           |  |              |
| <p>焊炉锡的温度控制在 260±5℃，时间为 3±0.5 秒, 与(基板)厚度 1.6mm.</p> <p>Soldering temperature 260±5℃,soldering time 3±0.5s,immersion depth up to the surface of the board, thickness of PCB 1.6mm.</p> <p>手焊接时温度控制在 350±5℃，时间为 3±0.5 秒，但不能在端子上施加异常压力。</p> <p>Manual soldering temperature350±5℃, soldering time 3±0.5s,however excessive pressure shall not be applied to the terminal.</p> <p>本体无变形,能满足与机械、电器性能。</p> <p>Without deformation of case or excessive looseness of electrical properties</p> |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                  |             |                  |                          |            |   |          |  |  |   |           |        |                  |   |           |  |  |   |                 |                    |                |   |           |  |              |
| 5-3 回流焊接热试验 REFLOW SOLDERING HEAR TEST                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                  | <div><table><tr><th>Parts</th><th>Temperature (°C)</th><th>Time at temperature(sec)</th><th>Treatments</th></tr><tr><td>A</td><td>NO - 150</td><td></td><td></td></tr><tr><td>B</td><td>150 - 180</td><td>90 ±30</td><td>Pre-heating zone</td></tr><tr><td>C</td><td>180 - 230</td><td></td><td></td></tr><tr><td>D</td><td>230 - 255 - 230</td><td>30 (Peak : 3 MAX.)</td><td>Soldering zone</td></tr><tr><td>E</td><td>230 to NO</td><td></td><td>Cooling zone</td></tr></table></div> |                  | Parts       | Temperature (°C) | Time at temperature(sec) | Treatments | A | NO - 150 |  |  | B | 150 - 180 | 90 ±30 | Pre-heating zone | C | 180 - 230 |  |  | D | 230 - 255 - 230 | 30 (Peak : 3 MAX.) | Soldering zone | E | 230 to NO |  | Cooling zone |
| Parts                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Temperature (°C) | Time at temperature(sec)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Treatments       |             |                  |                          |            |   |          |  |  |   |           |        |                  |   |           |  |  |   |                 |                    |                |   |           |  |              |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | NO - 150         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                  |             |                  |                          |            |   |          |  |  |   |           |        |                  |   |           |  |  |   |                 |                    |                |   |           |  |              |
| B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 150 - 180        | 90 ±30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Pre-heating zone |             |                  |                          |            |   |          |  |  |   |           |        |                  |   |           |  |  |   |                 |                    |                |   |           |  |              |
| C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 180 - 230        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                  |             |                  |                          |            |   |          |  |  |   |           |        |                  |   |           |  |  |   |                 |                    |                |   |           |  |              |
| D                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 230 - 255 - 230  | 30 (Peak : 3 MAX.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Soldering zone   |             |                  |                          |            |   |          |  |  |   |           |        |                  |   |           |  |  |   |                 |                    |                |   |           |  |              |
| E                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 230 to NO        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Cooling zone     |             |                  |                          |            |   |          |  |  |   |           |        |                  |   |           |  |  |   |                 |                    |                |   |           |  |              |
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| WENZHOU HANJING ELECTRONICS CO., LTD.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |            | 产品系列                                                                                                                                                                                                                                                                                      | 轻触开关  |             |
| TACT SWITCH SPECIFICATION<br>轻触开关产品承认书                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |            |                                                                                                                                                                                                                                                                                           |       |             |
| 5-4 寿命测试 LIFE TEST<br>无负载条件，每分钟 100-120 次的速度操作 1000，000 次。<br>1000，000cycles of operation at a rate of 100-120 cycles per minute with unloading<br>(1)接触电阻 200 毫欧以下。Contact resistance200mΩ<br>(2)动作力变化范围初始值 30%。Operating force 30% initial value.                                                                                                                                                                                                                                                                                                                                                                                             |            |                                                                                                                                                                                                                                                                                           |       |             |
| 5-5 盐雾 SAIL SPRA<br>1) 测试温度：35±2℃ Temperature：35±2℃<br>2) 循环次数：8 小时喷雾 1 小时停，连续 6 次. 喷雾 48 小时。<br>3) 盐雾浓度：5±1% Salt solution concentration: 5±1% by weight.<br>(1) 接触电阻 200 毫欧以下。Contact resistance200mΩ.<br>(2) 绝缘电阻 100 兆欧以上. Insulation resistance 100MΩ min.<br>(3) 无任何迹象显示机械及电器性能之损坏<br>there shall be no sign of mechanical and electrical damage.                                                                                                                                                                                                                                                                                         |            |                                                                                                                                                                                                                                                                                           |       |             |
| 5-6 耐热试验 HEAT RESISTAN TEST<br>在 80±2℃环境中放 96 小时，再置于正常环境中，30 分钟后进行测试。<br>80±2℃ for 96H, test after keeping in normal condition for 30min.<br>5-7 耐湿试验 MOISTURE RESISTANT TEST<br>在 60±2℃ 90~95%环境中放 96 小时，再置于正常环境中，30 分钟后进行测试。<br>At 60±2℃ 90~95% RH for 96H, test after keeping in normal condition for 30min.<br>5-8 耐冷试验 COLD RESISTANT TEST<br>在-40±2℃环境中放 96 小时，再置于正常环境中，30 分钟后进行测试。<br>At -40±2℃for 96H, test after keeping in normal condition for 30min.<br>5-9 温度交变试验 TEMPERATURE CYCLIG TEST<br>如图示之环境中，循环 5 次后，再置于正常环境中， 1 个小时后进行测试。<br>According to following figure, after 5cycles, test after keeping in normal condition for 1H. |            | <br>(1) 接触电阻 200 毫欧以下。<br>Contact resistance 200mΩ.<br>(2) 绝缘电阻 100 兆欧以上。<br>insulation resistance 100MΩ min.<br>(3) 无任何迹象显示机械及电器性能之损坏<br>there shall be no sign of mechanical and electrical damage. |       |             |
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电器原理图

### 技术参数

1. 额定电流: 50mA 12V DC
2. 接触电阻: 100毫欧
3. 按 力: 400 ± 100gf
4. 行 程: 0.9 ± 0.3mm
5. 绝缘电阻: 100兆欧
6. 寿 命: 100万次

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                    |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |
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|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | <div> 温州瀚精电子有限公司<br/>WENZHOU HANJING ELECTRONIC CO., LTD.</div> |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                    |  | <div><br/>第一视角<br/>一般公差</div> <table><tr><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2">±0.1</td></tr><tr><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2">±0.2</td></tr><tr><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2">±0.3</td></tr><tr><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2">±1°</td></tr></table> |  |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | ±0.1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | ±0.2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | ±0.3 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | ±1° |  |
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