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湖南省地方计量校准规范

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**柱式液压平板硫化机校准规范**

Calibration Specification for

**Column Hydraulic Type Flat Vulcanizing Machine**

（试验报告）

柱式液压平板硫化机试验报告

1. 实验目的

本规范对柱式液压平板硫化机的校准方法进行了规定，本次试验涉及5个厂家到6台不同型号的设备验证校准方法和校准规范的可行性。

1. 实验情况

本次试验的样品主要选取使用厂家在生产中广泛使用的产品和生产厂商反馈的主流产品，项目组按拟定规范的试验方法进行试验，分别选取浙江东毓、磐石精密工业、湖南华意、青岛亚华、青岛沃能的产品进行现场试验。同时项目组针对温度采用了表面温度计进行测量，其偏差和重复性远不如规范中所选用的方法；针对平行度采用百分表进行测量，试验效果不佳，无法满足反应压实平行度测量的要求。

1. 比较和结论

从试验过程和数据来看，规范中的校准方法简单易学且效率高，获得使用方的高度认可，绝大部分计量器具符合拟定规范对计量特性的要求，说明规范适用性良好。对数据进行分析，热板尺寸对温度和平行度参数的影响较为明显，但热板尺寸大时温度偏差和平行度较大，且对平行度影响更大。

柱式液压平板硫化机校准原始记录（1）

型号规格：HYL-2000P 出厂编号：63572 生产厂家： 衡阳华意 热板尺寸： 2000\*2000

1、温度参数校准

上加热板 温度设定值：150℃ （单位：℃）

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 位  置  次  数 | 实测温度值 | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1 | 151.26 | 152.12 | 150.36 | 152.38 | 150.94 | 151.78 | 152.41 | 151.03 | 151.46 |
| 2 | 151.38 | 152.19 | 150.46 | 152.39 | 151.06 | 151.86 | 152.57 | 151.21 | 151.52 |
| 3 | 151.49 | 152.27 | 150.58 | 152.57 | 151.14 | 152.02 | 152.65 | 151.38 | 151.67 |
| 4 | 151.57 | 152.43 | 150.66 | 152.65 | 151.22 | 152.08 | 152.71 | 151.46 | 151.75 |
| 5 | 151.65 | 152.48 | 150.74 | 152.73 | 151.3 | 152.16 | 152.79 | 151.54 | 151.83 |
| 6 | 151.73 | 152.56 | 150.82 | 152.81 | 151.38 | 152.24 | 152.87 | 151.62 | 151.91 |
| 最大值 | 151.73 | 152.56 | 150.82 | 152.81 | 151.38 | 152.24 | 152.87 | 151.62 | 151.91 |
| 最小值 | 151.26 | 152.12 | 150.36 | 152.38 | 150.94 | 151.78 | 152.41 | 151.03 | 151.46 |
| 上偏差 | 2.87 | | 下偏差 | -0.64 | | 均匀性 | 2.06 | 波动度 | ±0.30 |

下加热板 温度设定值：160℃ （单位：℃）

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 位  置  次  数 | 实测温度值 | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1 | 162.07 | 162.33 | 162.20 | 161.94 | 162.35 | 162.67 | 162.85 | 162.06 | 162.44 |
| 2 | 162.10 | 162.51 | 162.21 | 161.96 | 161.98 | 162.00 | 162.03 | 162.17 | 162.33 |
| 3 | 162.25 | 162.34 | 162.00 | 161.89 | 162.37 | 162.37 | 162.78 | 162.06 | 162.30 |
| 4 | 162.32 | 162.32 | 162.10 | 161.97 | 162.16 | 162.63 | 162.32 | 162.61 | 162.79 |
| 5 | 162.40 | 162.52 | 162.07 | 161.70 | 161.99 | 162.13 | 162.80 | 162.01 | 162.20 |
| 6 | 162.43 | 162.90 | 162.44 | 162.22 | 162.64 | 162.02 | 162.37 | 162.67 | 162.70 |
| 最大值 | 162.43 | 162.90 | 162.44 | 162.22 | 162.64 | 162.67 | 162.78 | 162.67 | 162.79 |
| 最小值 | 162.07 | 162.32 | 162.00 | 161.70 | 161.98 | 162.00 | 162.03 | 162.01 | 162.33 |
| 上偏差 | 2.79 | | 下偏差 | 1.70 | | 均匀性 | 1.37 | 波动度 | ±0.75 |

2、加压平行度校准 （单位：mm）

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 加压后厚度 | | | | | | | | | | 平行度 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 1.18 | 1.20 | 1.29 | 1.35 | 1.35 | 1.31 | 1.21 | 1.21 | 1.15 | 1.14 | 0.28 |

3、计时器误差参数校准 （单位：s）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 设定值 | 实测1 | 实测2 | 实测3 | 平均值 | 示值误差 |
| 900.00 | 899.66 | 897.79 | 897.75 | 898.40 | 1.60 |

柱式液压平板硫化机校准原始记录（2）

型号规格：HYL-1000P 出厂编号：92185 生产厂家： 衡阳华意 热板尺寸： 1200\*1400

1、温度参数校准

上加热板 温度设定值：120℃ （单位：℃）

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 位  置  次  数 | 实测温度值 | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1 | 119.49 | 119.65 | 119.49 | 119.21 | 119.39 | 119.74 | 120.35 | 120.59 | 120.71 |
| 2 | 119.61 | 119.99 | 119.77 | 119.73 | 120.07 | 120.12 | 120.21 | 120.31 | 120.68 |
| 3 | 119.62 | 120.01 | 119.94 | 119.90 | 120.28 | 120.41 | 121.07 | 121.15 | 121.45 |
| 4 | 119.67 | 119.84 | 119.64 | 119.28 | 119.58 | 119.80 | 120.46 | 120.70 | 120.88 |
| 5 | 119.86 | 120.00 | 119.92 | 119.72 | 119.75 | 120.09 | 120.63 | 120.91 | 121.34 |
| 6 | 119.91 | 120.30 | 120.29 | 120.23 | 120.54 | 120.79 | 121.17 | 121.45 | 121.52 |
| 最大值 | 119.91 | 120.30 | 120.29 | 120.23 | 120.54 | 120.79 | 121.17 | 121.45 | 121.52 |
| 最小值 | 119.49 | 119.65 | 119.49 | 119.21 | 119.39 | 119.74 | 120.21 | 120.31 | 120.68 |
| 上偏差 | 1.52 | | 下偏差 | -0.79 | | 均匀性 | 1.54 | 波动度 | ±0.57 |

下加热板 温度设定值：140℃ （单位：℃）

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 位  置  次  数 | 实测温度值 | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1 | 140.78 | 141.15 | 140.97 | 140.75 | 141.23 | 141.27 | 141.84 | 141.93 | 142.22 |
| 2 | 140.98 | 141.23 | 140.75 | 140.54 | 140.91 | 141.06 | 141.57 | 141.75 | 142.02 |
| 3 | 141.11 | 141.16 | 140.70 | 140.49 | 140.56 | 140.58 | 141.19 | 141.44 | 141.80 |
| 4 | 141.18 | 141.54 | 141.08 | 140.71 | 140.96 | 141.00 | 141.42 | 141.56 | 142.02 |
| 5 | 141.31 | 141.66 | 141.47 | 141.27 | 141.48 | 141.80 | 142.25 | 142.28 | 142.45 |
| 6 | 141.49 | 141.64 | 141.27 | 141.00 | 141.24 | 141.61 | 141.90 | 142.00 | 142.27 |
| 最大值 | 141.49 | 141.66 | 141.47 | 141.27 | 141.48 | 141.80 | 142.25 | 142.28 | 142.45 |
| 最小值 | 140.78 | 141.15 | 140.70 | 140.49 | 140.56 | 140.58 | 141.19 | 141.44 | 141.80 |
| 上偏差 | 2.45 | | 下偏差 | 0.49 | | 均匀性 | 1.34 | 波动度 | ±0.61 |

2、加压平行度校准 （单位：mm）

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 加压后厚度 | | | | | | | | | | 平行度 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 1.08 | 1.11 | 1.14 | 1.22 | 1.22 | 1.21 | 1.12 | 1.09 | 1.15 | 1.22 | 0.14 |

3、计时器误差参数校准 （单位：s）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 设定值 | 实测1 | 实测2 | 实测3 | 平均值 | 示值误差 |
| 900.00 | 901.40 | 900.23 | 902.65 | 901.43 | -1.43 |

柱式液压平板硫化机校准原始记录（3）

型号规格：XLB-3MN 出厂编号：20L10066 生产厂家：青岛亚华 热板尺寸： 1500\*1500

1、温度参数校准

上加热板 温度设定值：180℃ （单位：℃）

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 位  置  次  数 | 实测温度值 | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1 | 178.86 | 179.10 | 178.70 | 178.48 | 178.73 | 178.92 | 179.50 | 179.50 | 179.55 |
| 2 | 179.04 | 179.42 | 179.07 | 178.78 | 179.10 | 179.53 | 180.12 | 180.29 | 180.32 |
| 3 | 179.23 | 179.57 | 179.57 | 179.24 | 179.24 | 179.42 | 180.09 | 180.24 | 180.65 |
| 4 | 179.31 | 179.56 | 179.49 | 179.31 | 179.31 | 179.47 | 179.94 | 180.10 | 180.42 |
| 5 | 179.46 | 179.53 | 179.38 | 178.90 | 179.03 | 179.15 | 179.67 | 179.73 | 179.97 |
| 6 | 179.46 | 179.65 | 179.30 | 179.13 | 179.46 | 179.50 | 179.95 | 180.19 | 180.20 |
| 最大值 | 179.46 | 179.65 | 179.57 | 179.31 | 179.46 | 179.53 | 180.12 | 180.29 | 180.65 |
| 最小值 | 178.86 | 179.10 | 178.70 | 178.48 | 178.73 | 178.92 | 179.50 | 179.50 | 179.55 |
| 上偏差 | 0.65 | | 下偏差 | -1.52 | | 均匀性 | 1.22 | 波动度 | ±0.55 |

下加热板 温度设定值：180℃ （单位：℃）

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 位  置  次  数 | 实测温度值 | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1 | 180.67 | 180.77 | 180.64 | 180.24 | 180.36 | 180.41 | 180.93 | 181.09 | 181.10 |
| 2 | 180.84 | 181.20 | 181.16 | 180.88 | 180.93 | 181.23 | 181.26 | 181.52 | 181.75 |
| 3 | 180.94 | 181.44 | 181.26 | 180.84 | 180.98 | 181.36 | 181.46 | 181.67 | 182.08 |
| 4 | 181.06 | 181.31 | 180.86 | 180.36 | 180.82 | 180.95 | 181.63 | 181.83 | 181.91 |
| 5 | 181.07 | 181.15 | 180.84 | 180.76 | 181.04 | 181.16 | 181.27 | 181.27 | 181.52 |
| 6 | 181.21 | 181.45 | 181.11 | 181.03 | 181.34 | 181.52 | 182.14 | 182.40 | 182.56 |
| 最大值 | 181.21 | 181.45 | 181.26 | 181.03 | 181.34 | 181.52 | 182.14 | 182.40 | 182.56 |
| 最小值 | 180.67 | 180.77 | 180.64 | 180.24 | 180.36 | 180.41 | 180.93 | 181.09 | 181.10 |
| 上偏差 | 2.56 | | 下偏差 | 0.24 | | 均匀性 | 1.14 | 波动度 | ±0.73 |

2、加压平行度校准 （单位：mm）

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 加压后厚度 | | | | | | | | | | 平行度 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 1.21 | 1.24 | 1.21 | 1.28 | 1.26 | 1.19 | 1.15 | 1.14 | 1.09 | 1.13 | 0.19 |

3、计时器误差参数校准 （单位：s）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 设定值 | 实测1 | 实测2 | 实测3 | 平均值 | 示值误差 |
| 900.00 | 899.66 | 897.79 | 897.75 | 898.40 | 1.60 |

柱式液压平板硫化机校准原始记录（4）

型号规格：TYC-V-S-200PC 出厂编号：W-27863 生产厂家：浙江东毓 热板尺寸： 1200\*900

1、温度参数校准

上加热板 温度设定值：155℃ （单位：℃）

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 位  置  次  数 | 实测温度值 | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1 | 156.21 | 156.37 | 156.05 | 156.55 | 156.17 | 156.07 | 156.19 | 156.06 | 155.97 |
| 2 | 156.22 | 156.49 | 156.21 | 156.54 | 156.27 | 156.22 | 156.35 | 156.17 | 156.06 |
| 3 | 156.28 | 156.62 | 156.54 | 156.65 | 156.60 | 156.48 | 156.82 | 156.74 | 156.63 |
| 4 | 156.29 | 156.40 | 156.13 | 156.34 | 156.24 | 156.06 | 156.65 | 156.60 | 156.57 |
| 5 | 156.38 | 156.62 | 156.24 | 156.73 | 156.53 | 156.48 | 156.66 | 156.41 | 156.33 |
| 6 | 156.42 | 156.49 | 156.47 | 156.80 | 156.45 | 156.43 | 156.62 | 156.41 | 156.25 |
| 最大值 | 156.42 | 156.62 | 156.54 | 156.80 | 156.60 | 156.48 | 156.82 | 156.74 | 156.63 |
| 最小值 | 156.21 | 156.37 | 156.05 | 156.34 | 156.17 | 156.06 | 156.19 | 156.06 | 155.97 |
| 上偏差 | 1.82 | | 下偏差 | 0.97 | | 均匀性 | 0.54 | 波动度 | ±0.34 |

下加热板 温度设定值：145℃ （单位：℃）

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 位  置  次  数 | 实测温度值 | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1 | 145.63 | 145.70 | 145.57 | 145.88 | 145.56 | 145.46 | 145.49 | 145.21 | 145.11 |
| 2 | 145.66 | 145.84 | 145.71 | 146.02 | 145.43 | 145.31 | 145.82 | 145.56 | 145.39 |
| 3 | 145.69 | 146.06 | 145.68 | 145.86 | 145.81 | 145.74 | 146.29 | 146.24 | 146.19 |
| 4 | 145.71 | 145.93 | 145.79 | 146.12 | 145.58 | 145.54 | 146.14 | 145.96 | 145.68 |
| 5 | 145.80 | 145.97 | 145.95 | 146.18 | 146.01 | 145.91 | 146.07 | 146.04 | 145.96 |
| 6 | 145.82 | 145.92 | 145.76 | 145.77 | 145.26 | 145.06 | 145.11 | 144.89 | 144.77 |
| 最大值 | 145.82 | 146.06 | 145.95 | 146.18 | 146.01 | 145.91 | 146.29 | 146.24 | 146.19 |
| 最小值 | 145.63 | 145.70 | 145.57 | 145.77 | 145.26 | 145.06 | 145.11 | 144.89 | 144.77 |
| 上偏差 | 1.29 | | 下偏差 | -0.23 | | 均匀性 | 0.71 | 波动度 | ±0.71 |

2、加压平行度校准 （单位：mm）

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 加压后厚度 | | | | | | | | | | 平行度 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 1.05 | 1.02 | 0.93 | 0.88 | 0.87 | 0.89 | 0.97 | 0.95 | 1.00 | 1.09 | 0.22 |

3、计时器误差参数校准 （单位：s）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 设定值 | 实测1 | 实测2 | 实测3 | 平均值 | 示值误差 |
| 900.00 | 901.47 | 898.62 | 899.26 | 899.78 | 0.22 |

柱式液压平板硫化机校准原始记录（5）

型号规格：XL8 -0 出厂编号：201002 生产厂家：青岛沃能 热板尺寸： 800\*800

1、温度参数校准

上加热板 温度设定值：150℃ （单位：℃）

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 位  置  次  数 | 实测温度值 | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1 | 150.27 | 150.39 | 150.29 | 150.61 | 150.01 | 149.83 | 150.46 | 150.28 | 150.05 |
| 2 | 150.42 | 150.68 | 150.29 | 150.36 | 150.32 | 150.19 | 150.52 | 150.39 | 150.39 |
| 3 | 150.44 | 150.56 | 150.31 | 150.71 | 150.22 | 150.02 | 150.47 | 150.20 | 149.98 |
| 4 | 150.62 | 151.06 | 150.96 | 151.00 | 150.68 | 150.53 | 150.80 | 150.51 | 150.23 |
| 5 | 150.66 | 151.02 | 150.97 | 151.40 | 151.32 | 151.30 | 151.91 | 151.86 | 151.80 |
| 6 | 150.84 | 151.15 | 150.91 | 151.02 | 150.64 | 150.52 | 151.17 | 151.12 | 151.10 |
| 最大值 | 150.84 | 151.15 | 150.97 | 151.40 | 151.32 | 151.30 | 151.91 | 151.86 | 151.80 |
| 最小值 | 150.27 | 150.39 | 150.29 | 150.36 | 150.01 | 149.83 | 150.46 | 150.20 | 149.98 |
| 上偏差 | 1.91 | | 下偏差 | -0.17 | | 均匀性 | 0.79 | 波动度 | ±0.91 |

下加热板 温度设定值：150℃ （单位：℃）

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 位  置  次  数 | 实测温度值 | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1 | 151.38 | 151.68 | 151.40 | 151.85 | 151.82 | 151.62 | 152.09 | 151.82 | 151.61 |
| 2 | 151.57 | 151.79 | 151.43 | 151.59 | 151.10 | 150.93 | 151.35 | 151.32 | 151.03 |
| 3 | 151.64 | 151.79 | 151.72 | 151.73 | 151.17 | 151.16 | 151.37 | 151.12 | 150.97 |
| 4 | 151.78 | 152.26 | 152.20 | 152.66 | 152.63 | 152.53 | 152.93 | 152.85 | 152.85 |
| 5 | 151.82 | 152.26 | 152.12 | 152.16 | 151.59 | 151.50 | 151.71 | 151.49 | 151.30 |
| 6 | 151.94 | 152.01 | 151.98 | 152.22 | 151.64 | 151.54 | 151.94 | 151.85 | 151.56 |
| 最大值 | 151.94 | 152.26 | 152.20 | 152.66 | 152.63 | 152.53 | 152.93 | 152.85 | 152.85 |
| 最小值 | 151.38 | 151.68 | 151.40 | 151.59 | 151.10 | 150.93 | 151.35 | 151.12 | 150.97 |
| 上偏差 | 2.93 | | 下偏差 | 0.93 | | 均匀性 | 0.86 | 波动度 | ±0.94 |

2、加压平行度校准 （单位：mm）

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 加压后厚度 | | | | | | | | | | 平行度 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 1.10 | 1.09 | 1.16 | 1.14 | 1.12 | 1.13 | 1.07 | 1.11 | 1.15 | 1.15 | 0.09 |

3、计时器误差参数校准 （单位：s）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 设定值 | 实测1 | 实测2 | 实测3 | 平均值 | 示值误差 |
| 900.00 | 899.38 | 897.44 | 898.77 | 898.53 | 1.47 |

柱式液压平板硫化机校准原始记录（6）

型号规格：TC-100C 出厂编号：P3L066 生产厂家：磐石精密工业 热板尺寸： 800\*800

1、温度参数校准

上加热板 温度设定值：155℃ （单位：℃）

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 位  置  次  数 | 实测温度值 | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1 | 154.83 | 154.89 | 154.62 | 154.86 | 154.28 | 154.11 | 154.15 | 153.98 | 153.97 |
| 2 | 154.99 | 155.35 | 155.15 | 155.19 | 154.76 | 154.57 | 154.99 | 154.70 | 154.42 |
| 3 | 155.12 | 155.34 | 155.28 | 155.43 | 154.98 | 154.82 | 155.44 | 155.19 | 154.92 |
| 4 | 155.21 | 155.69 | 155.40 | 155.62 | 155.37 | 155.18 | 155.43 | 155.40 | 155.17 |
| 5 | 155.34 | 155.35 | 155.10 | 155.33 | 155.26 | 155.07 | 155.75 | 155.46 | 155.34 |
| 6 | 155.51 | 156.00 | 155.92 | 155.95 | 155.44 | 155.40 | 156.03 | 155.93 | 155.74 |
| 最大值 | 155.51 | 156.00 | 155.92 | 155.95 | 155.44 | 155.40 | 156.03 | 155.93 | 155.74 |
| 最小值 | 154.83 | 154.89 | 154.62 | 154.86 | 154.28 | 154.11 | 154.15 | 153.98 | 153.97 |
| 上偏差 | 1.03 | | 下偏差 | -1.03 | | 均匀性 | 0.72 | 波动度 | ±0.97 |

下加热板 温度设定值：145℃ （单位：℃）

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 位  置  次  数 | 实测温度值 | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1 | 146.02 | 146.31 | 146.10 | 146.27 | 146.20 | 146.14 | 146.48 | 146.27 | 145.99 |
| 2 | 146.06 | 146.53 | 146.35 | 146.55 | 146.53 | 146.34 | 146.39 | 146.32 | 146.23 |
| 3 | 146.09 | 146.17 | 146.02 | 146.36 | 145.83 | 145.68 | 146.34 | 146.28 | 146.07 |
| 4 | 146.14 | 146.15 | 145.93 | 146.14 | 145.75 | 145.65 | 145.92 | 145.65 | 145.41 |
| 5 | 146.22 | 146.57 | 146.49 | 146.60 | 146.11 | 146.05 | 146.66 | 146.53 | 146.48 |
| 6 | 146.22 | 146.60 | 146.28 | 146.32 | 146.14 | 146.00 | 146.38 | 146.13 | 146.10 |
| 最大值 | 146.22 | 146.60 | 146.49 | 146.60 | 146.53 | 146.34 | 146.66 | 146.53 | 146.48 |
| 最小值 | 146.02 | 146.15 | 145.93 | 146.14 | 145.75 | 145.65 | 145.92 | 145.65 | 145.41 |
| 上偏差 | 1.66 | | 下偏差 | 0.41 | | 均匀性 | 0.60 | 波动度 | ±0.53 |

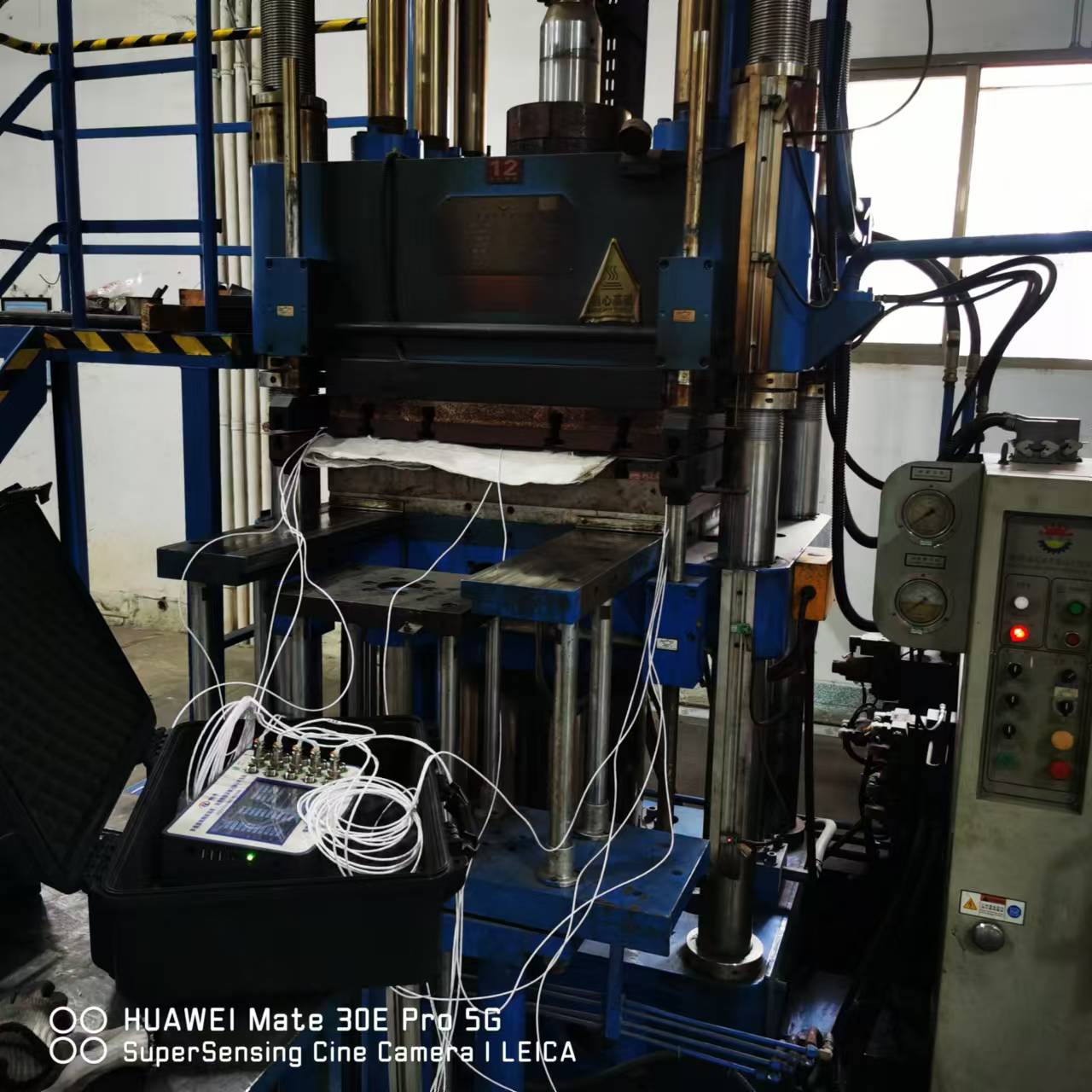
2、加压平行度校准 （单位：mm）

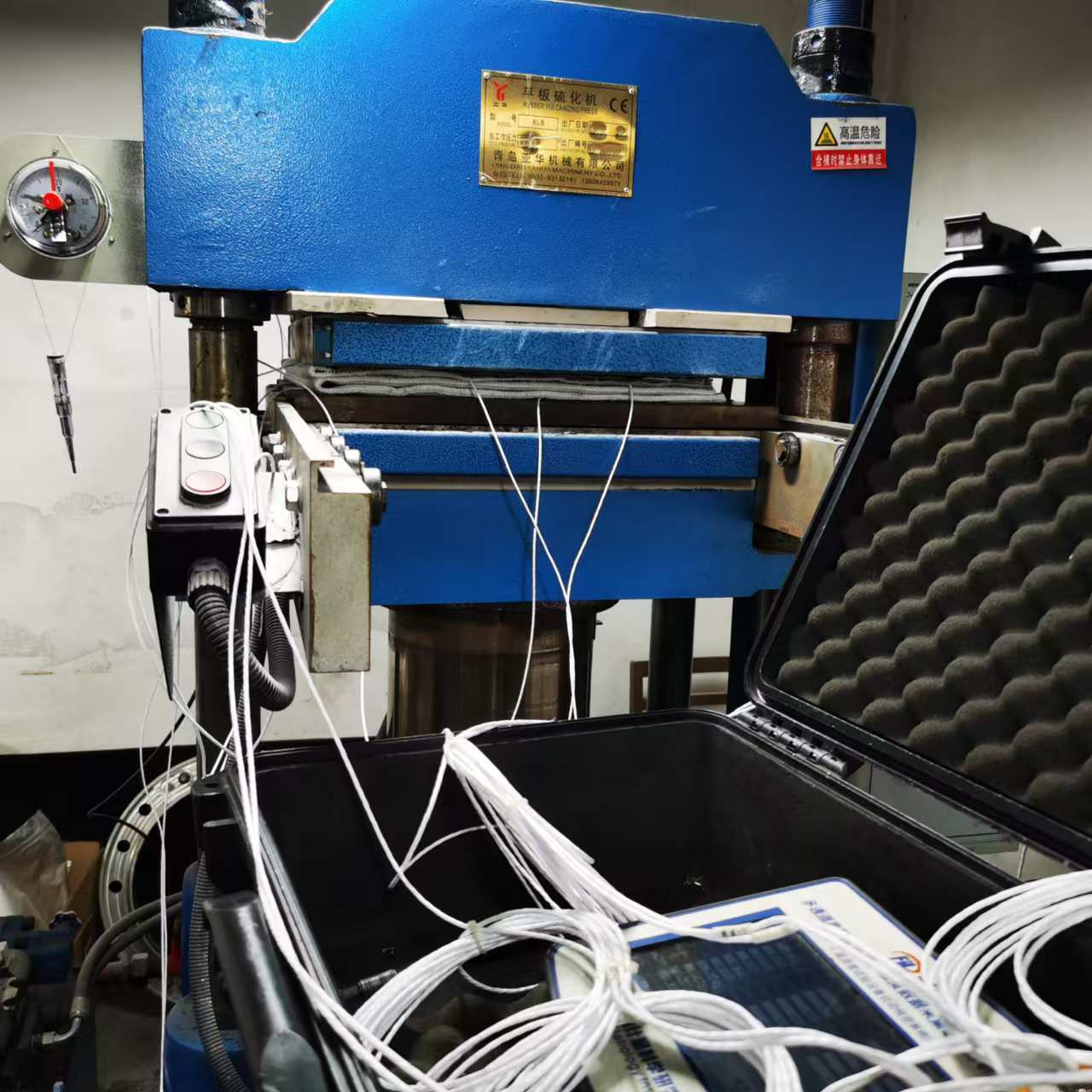
|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 加压后厚度 | | | | | | | | | | 平行度 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 1.05 | 1.05 | 1.11 | 1.20 | 1.18 | 1.19 | 1.14 | 1.13 | 1.04 | 1.00 | 0.19 |

3、计时器误差参数校准 （单位：s）

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 设定值 | 实测1 | 实测2 | 实测3 | 平均值 | 示值误差 |
| 900.00 | 898.05 | 898.64 | 898.10 | 898.26 | 1.74 |

试验现场图



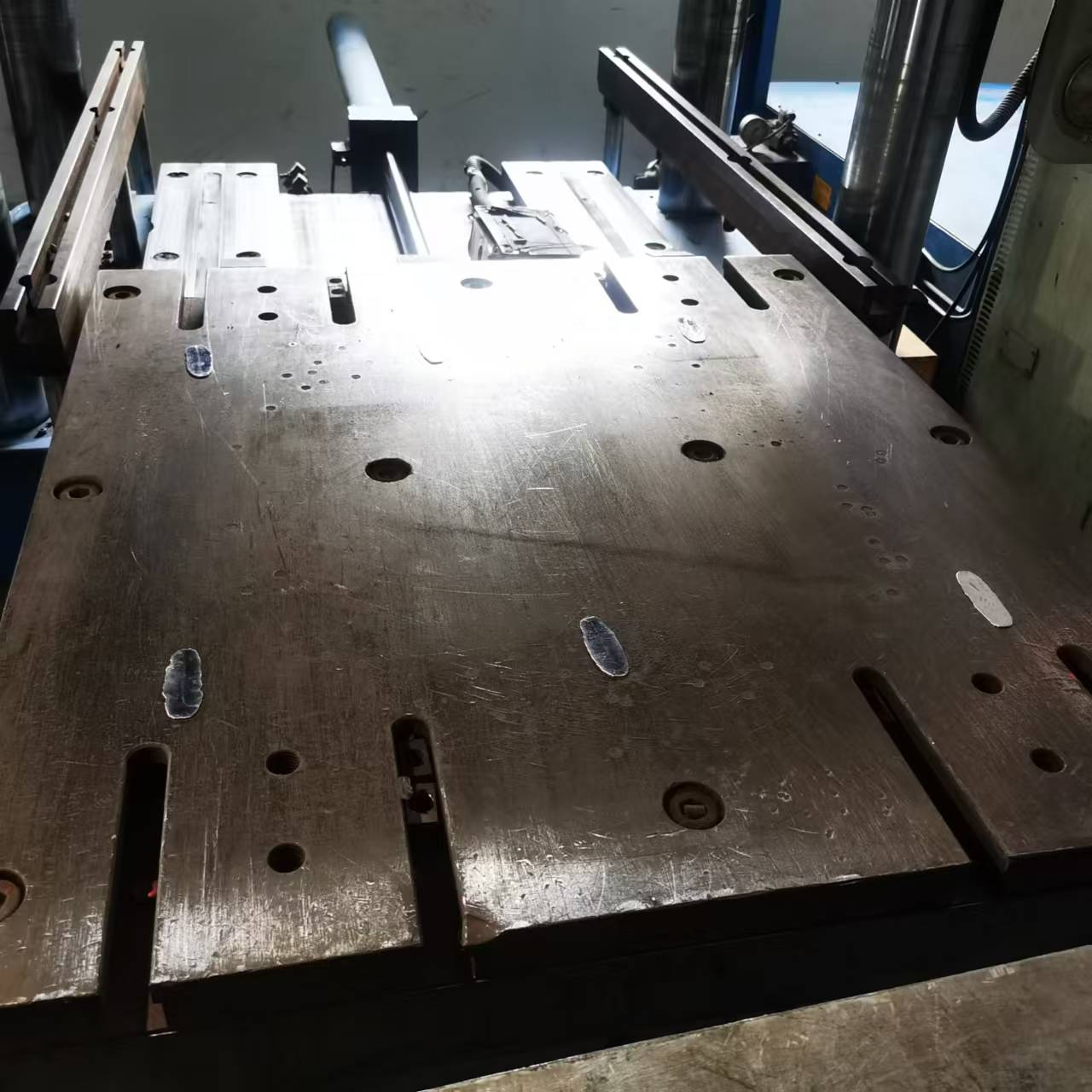






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