**机械工程基础实验**

**实 验 报 告**

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浙江大学机械工程实验教学中心

2024年9月

## 实验一 形位误差测量

### 一、实验目的

### 二、实验原理

### 三、实验内容（含设备、步骤）

**（“一、实验目的、二、实验原理、三、实验内容”合计篇幅限定2页以内）**

### 四、实验结果

1、导轨直线度测量

使用的仪器是刻度值为\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_的\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_仪。

垫铁的长度为\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_mm 允许公差值=\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

测量结果如下：

1）.计算法

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| 测量位置 |  |  |  |  |  |  |  |  |  |
| 读数（格） |  |  |  |  |  |  |  |  |  |
| 减去一任意值（格） |  | | | | | | | | |
| 减后读数（格） |  |  |  |  |  |  |  |  |  |
| 算术平均值（格） |  | | | | | | | | |
| 相对值（格） |  |  |  |  |  |  |  |  |  |
| 累积值（格） |  |  |  |  |  |  |  |  |  |
| 导轨直线度误差（μm） |  | | | | | | | | |

导轨直线度误差\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_μm。

适用性性结论\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_。

说明理由：

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| 完成日期 | 班 级 | 学生姓名 | 指导教师 |
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1、导轨直线度测量（续）

2). 作图法：

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导轨直线度误差\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_μm

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2、平板平面度测量

使用仪器　　　　　　　　　　　　　　　　　刻度值

垫铁长度　　　　　　　　　　　　　　　　　被测平板尺寸

允许公差值

测得值：

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读数值（格）　 　　　　　　　　　　　 累积值（格）

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旋转量（格）　　　　　　　　　　　　　平面度误差值（格）

计算方程式：

解得　　Ｐ＝　　　　　　　　　　　　　　Ｑ＝

测量结果：　平面度误差f＝ μm

适用性结论：

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| --- | --- | --- | --- |
| 完成日期 | 班 级 | 学生姓名 | 指导教师 |
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### 五、形位误差测量实验思考题：

1、光学平直仪测量导轨直线度时，若光束未在分划板上看到成像会是什么原因，该如何处理？

2、平板平面度测量中，哪些因素会影响平面度测量结果，如何处理或改进？