# ME 379 Experimental Accuracies

## Internal flow

| | |
|---|---|
| Tube length | ± 0.065 in |
| Tube diameter | ± 0.002 in |
| Flowrate | ± 5% |
| Water column | ± 0.05 in |
| Air temperature | ± 1 F |

## External flow (Falling Sphere experiment)

| | |
|---|---|
| Stop watch (time duration) | ± 0.25 s |
| Glycerin temperature | ± 0.5 C |

## External flow (Cylinder in crossflow experiment)

| | |
|---|---|
| Airflow (pressure gage) | ± 2% of full scale |
| Large washer | 19 ± 0.5 g |
| Small washer | 5 ± 0.2 g |

## Convection Heat flow

| | |
|---|---|
| K-type thermocouple | ± 1 °F |
| Simpson multimeter | ± 0.5% |
| Pitot tube manometer | ± 5% |
| Thermistor | ± 0.4 °C |

## Radiation

| | |
|---|---|
| K-type thermocouple | ± 1 F |
| Wattmeter | ± 0.2 W |

## Boundary Layer

| | |
|---|---|
| Mercury thermometer | ± 1 F |
| Manometer | ± 0.1 mbar |
| Pitot tube thickness | ± 0.025 in |

**Falling Sphere or External Flow Experiment**

| Diameter (inch) | Mass (g) | Density ($lbm/in^3$) |
|---|---|---|
| 0.75 | 28.1 | 0.2798 |
| 0.5 | 8.3 | 0.2789 |
| 0.375 | 3.5 | 0.2788 |
| 0.25 | 1.0 | 0.2689 |