Digital recording balances

The Thermo Scientific Cahn D-Series recording balances are PC computer controlled and feature high-resolution digital electronics, wide dynamic weighing ranges, computer control, data acquisition and analysis. The D-Series family of balances, consisting of the D-100, D-101, D-200 and D-202, feature:

- Up to 100 grams capacity
- High corrosion resistance
- Excellent vacuum capability
- Large weight changes recorded with high resolution
- Exceptionally low electronic and temperature drift
- Complete software package
- Subtraction of blank runs from actual runs for true data
- Display of percent weight change and 1st derivatives
- Large assortment of glassware

The weighing mechanism is mounted on a base plate and covered by a Stainless Steel dome. Below the base plate are ports for the sample and tare tubes. All parts are anodized, gold plated or Teflon coated to resist corrosion and reduce out-gassing. The pre-amplifier is separate from the weighing mechanism and is mounted on the stand to further resist corrosion and out-gassing. The control unit houses the controlling electronics, which are designed for low-noise and long term stability. Date from the control unit is sent via RS-232 signal to the computer.

Glassware

The sample port of the D-100 Series is equipped with a *75/50* ball joint while the D-200 is supplied with a 40/35 tapered joint. An optional *60/35*-tapered joint is available for all D-Series balances except the D-202. All joints have an 0-ring for vacuum sealing. The selection of sample tubes range from 16 to 60 mm diameters in Pyrex, quartz, or Mullite, and in vacuum or flow-through design. Glass caps are included with each balance for the ports that are not used for the sample.

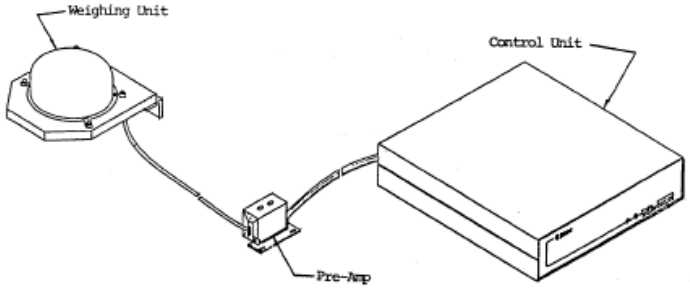

Figure 1. Balance Components

Vacuum Port

Located at the front of the Base Plate is the Vacuum Port (see Figure 2). This port is sealed from the under side with a gasket and plate held in place by three screws. If you want to draw a vacuum, you will need an optional Vacuum Take-off Kit. These kits contain a KF NW25 adapter tube. Kit #13364-02 contains a straight tube while kit #13364-01 contains a 90-degree elbow tube. Each kit contains an 0-ring to seal the junction of the tube to the Base Plate and the necessary clamps.

Standard accessory kit

The standard accessory kit included with the balance contains calibration and tare weights, pre-amp, RS-232 cables, stirrups for calibration, for-

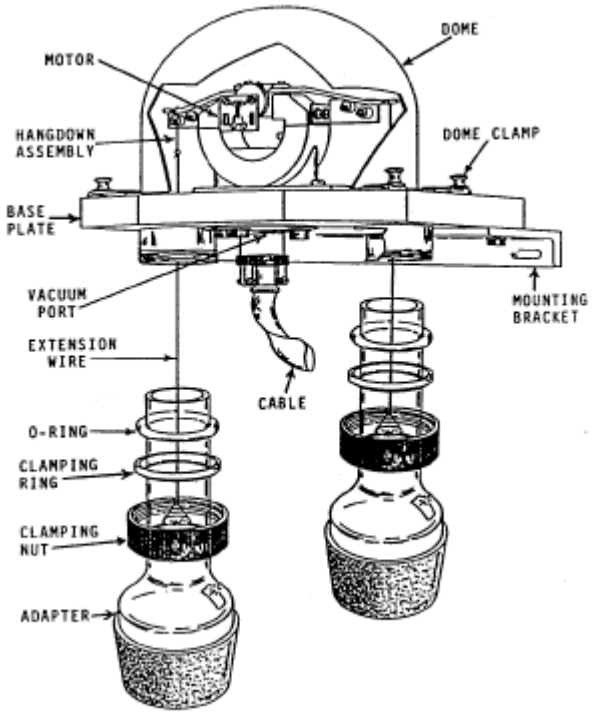

Figure 2: D-100 Weighing Unit

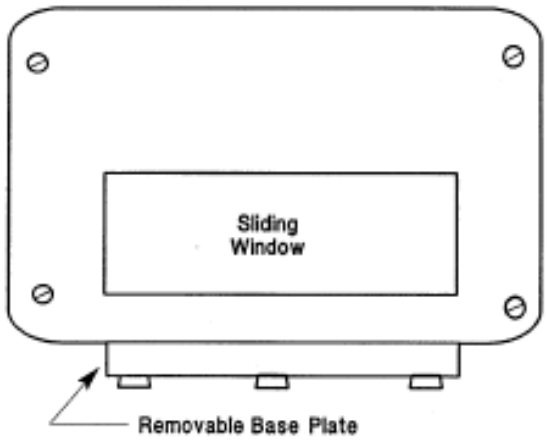

Figure 3: D-202 Air Case

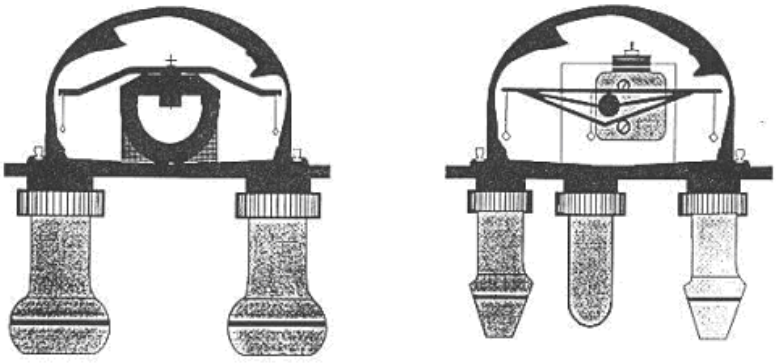

Figure 4: Weighing Unit

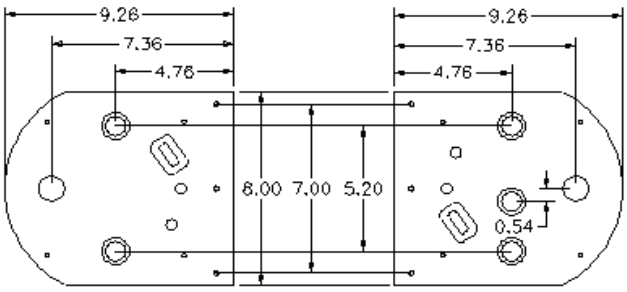

Figure 5: Base Plates for D100/D101 and D200

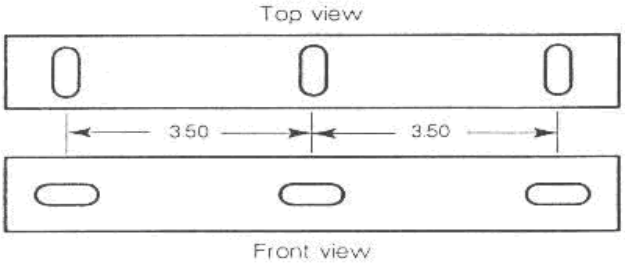

Figure 6: Bracket for D-Series Balances

ceps, extension wire, sample tube adapter, standard bracket and instruction manual.

Air case Version

The model D-202 has the weighing unit and pre-amp from the D-200 mounted in an air case. This air case can be mounted above the application set-up and allows the sample to be suspended below the air case. This configuration is useful for such application as surface tension and force measurements.

The air case has a sliding window on the front that allows access to the weighing unit. The cable extends from the rear of the case. When the weighted base plate is removed, the air case can be mounted on a bridge that spans the application. Holes in the bottom of the air case allow the extension wire from the weighing unit to pass through the air case. The air case does not have any vacuum or flowing gas capabilities.

If you need to mount the weighing unit in your own chamber, such as a high vacuum chamber, the weighing unit and pre-amp can be removed from the air case and then mounted in your chamber.

Optional accessories

The following accessories, besides the ones mentioned in this Product Note, should be considered when ordering a D-Series balance:

- Stand
- Sample tube
- Pans
- Ionizing Unit (for static control)
- Thermocouple
- Calibration weight (as primary standard)
- O-rings (spares)

Dome peak's 4.2 inches above base plate. Base plate is .62 inches thick.

Power requirments

The D-Series Recording Balance will automatically adjust itself to any electrical supply between 100 to 240 volts with a frequency between 50 and 60 Hz. The balance will continue to operate normally if the voltage should drop from the rated value as long as it does not drop below 100 volts. The balance also has pro-

tection against some spikes and dips that may occur on the electrical power supply. However, extreme electrical noise may still cause problems for the balance and/or computer. Power consumption is about 30 watts.

Performance Specifications

Model	D-200	D-200	D-100	D-101	D-101
	A-Loop	B-Loop		10 g range	1 g range
Load Capacity:	1.5 g	3.5 g	100 g	100 g	100 g
Max Weight Change:	150 mg	750 mg	10 g	10 g	1 g
Display Resolution:	0.1 µg	1.0 µg	10 µg	10 µg	1 µg
Repeatability:					
No load 50% lift	1.0 µg	30 µg	100 µg	100 µg	10 µg
Fraction of load, 50% lift	0.002%	0.01%	0.002%	0.002%	0.002%

For all balances except for the air case:

- Vacuum capability: 10^{-6} torr
- Bake-out temperature: 125 °C

Warranty

The D-Series balances have a one-year warranty on parts and labor. Copies of these limited warranties are available upon request. All specifications are subject to change without notice.

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