

List of Items & General Instructions

Wind Tunnel Balances:

Quantity : Each One 6-Component & Rolling balances.

Dummy Balance : Balance must be provided with a dummy balance made of Stainless steel.

Calibration body : Balance must be supplied with a calibration body made of Stainless steel.

Fasteners : 'Unbrako' make fasteners for connecting and removing the balance from calibration body.

Calibration Report : Balance must be supplied with 2 copies of calibration reports.

Details of Strain gauge balances

Specification for Balances:

❖ Material: 17-4-PH

Size (mm)	6 - Component Balance	Roll Balance
Overall length	112	405
Diameter	12	15

❖ Load Chart:

Loads (Max)	6 - Component Balance	Roll Balance
F _x (kg) Axial	18	-
F _z (kg) Normal	10	-
F _y (kg) Side	5	-
M _x (kg mm) Rolling	80	30
M _y (kg mm) Pitching	320	-
M _z (kg mm)Yawing	160	-

Details of Strain Gauge Balances:

- ❖ The Strain gauges must be self temperature compensated for the temperature range of 0 to 200° C.
- ❖ Gage Resistance must be 350Ω/1000Ω.
- ❖ The gauges must withstand high temperatures (up to 200° C).
- ❖ Bridges to have common DC power supply of up to 5Volts. Two sense lines must be provided for measurement of excitation voltage.
- ❖ Initial imbalance in each bridge must be <1mv.
- ❖ There must be minimum of 2 axial bridges (full) with output taken out in parallel.
- ❖ All bridges must be suitably color coded.
- ❖ Detailed calibration report must be provided with 6x6 matrix and complete geometrical and electrical drawings.
- ❖ Each balance must be supplied with a dummy balance and packaged in a suitable wooden box.
- ❖ Each balance must be supplied with a calibration body and necessary loading plates.
- ❖ The output of each bridge must be linear and non-linearity must not exceed 0.25%.
- ❖ The diagonal matrix must give a minimum sensitivity of 1mV/V for the maximum load but the sensitivity should not exceed 2mV/V for the maximum load.
- ❖ The other interaction terms should be within 1% of FS and a maximum of 5% interaction is permissible only for 2 out of 30 interaction terms.
- ❖ However the interaction terms must be linear and any non-linearity should not exceed 0.25%.
- ❖ Supply of 6 struts with angles -2 to 8 in steps of 2.

