

Calibration Wind Tunnel

CAPABILITY SHEET · SAME AIR FOR BOTH INSTRUMENTS · A REFERENCE CHAIN WORKED OUT FROM PRESSURE AND

THE ONE IDEA

PRINCIPLE	Same air for both instruments.
WHY IT MATTERS	A calibration compares a reference with the instrument under test, so the stream has to be even and steady where both sit, and the reference speed has to be worked out honestly from a pressure and the density of the air.

THE TUNNEL

AIR	A fan and variable-speed drive, a diffuser, a flow conditioner of honeycomb and fine screens, and a smooth contraction into the test section.
TEST SECTION	Closed or open-jet, with mounts that put the reference and the instrument at the same position and orientation, and a turntable to set the angle.
REFERENCE CHAIN	A pitot-static tube, a differential pressure transducer, and temperature, pressure and humidity sensors for the air density.
CONTROL	A traverse and survey probe to map the stream, and a controller and recorder that step through the speeds, wait for each to settle and write the curve.

THE METHOD

ORDER	Specify, size, build, survey, calibrate and prove. Mapping the air before the first instrument goes in, and running a reference instrument before every session, are what a quick order skips.
LIMITS	Speeds, uncertainties, section sizes and tolerances come from the method the customer names and from the instruments, and are not printed here.

CONFIGURATIONS

OPEN CIRCUIT, CLOSED SECTION	A tunnel that draws room air through the conditioner into a closed test section, for probes and small anemometers.
OPEN CIRCUIT, OPEN JET	A tunnel whose stream leaves the contraction as a free jet, for larger instruments, with a traverse to map the even core.
CLOSED CIRCUIT	A recirculating tunnel for a quiet, steady stream, with a way to watch the temperature of the air.

STANDARDS & SCOPE

STANDARDS	Public references: IEC 61400-12-1, whose annex gives a wind tunnel calibration procedure for anemometers, and ISO/IEC 17025 for the competence of calibration laboratories.
SCOPE BOUNDARY	It is the calibration wind tunnel: not a wind tunnel pressure regulation system, not a flow calibration rig and not an air data test set.
STATUS	Neometrix engineers calibration wind tunnels to order, and no delivered calibration wind tunnel is claimed.

DEFENCE PROGRAMMES DESK

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