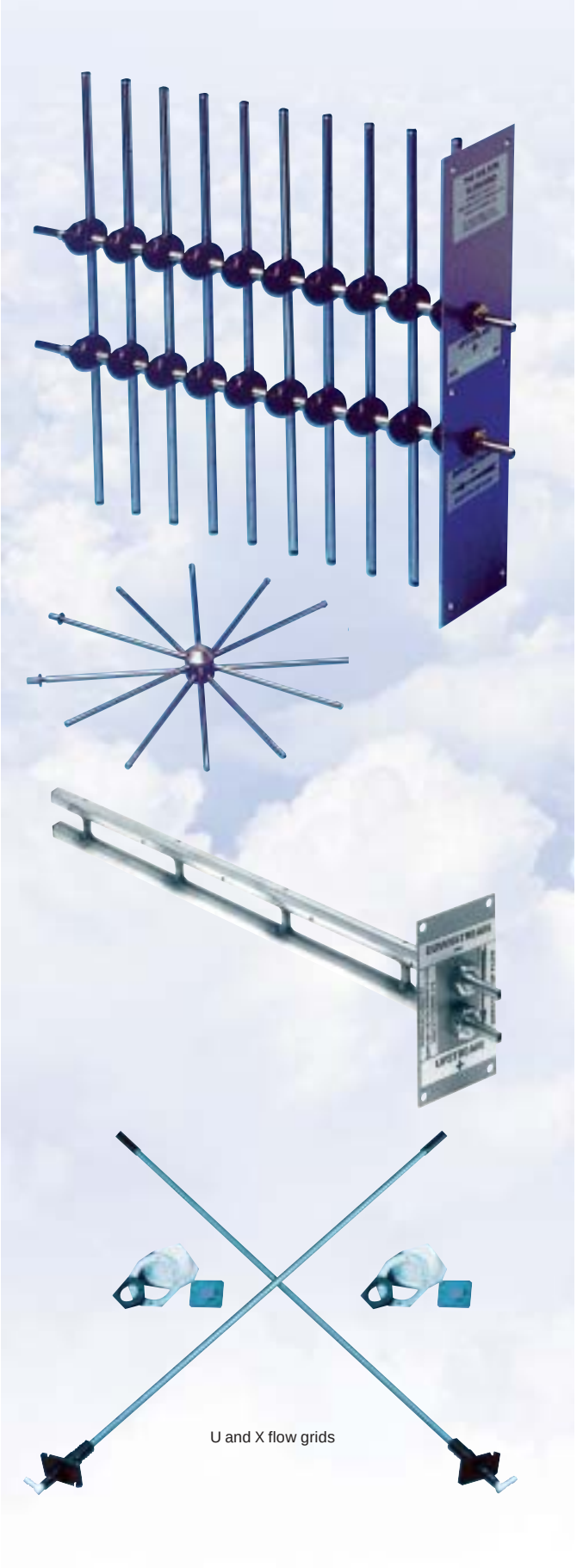
Airflow Grids

An outstanding simple yet highly accurate, durable and cost effective solution for fixed clean air flow monitoring in ducts and pipes.

Flow grids will transmit a comparable and repeatable differential pressure proportional to the average air flow, however turbulent the in-duct conditions and with no moving parts long term reliability is assured. Designed for a wide variety of temperate and environmental conditions they are often found in applications where many other flow measuring devices are unsuitable.

- **Choice of standard, radial, 'U' and 'X' grid formats to best suit your application.**
- **Suitable for clean air velocities between 1.5 and 30 m/sec (6000 ft/min).**
- **Very low system resistance with magnified output signal for up to 2.5 times greater than velocity pressure. Excellent resolution at low flows.**
- **Maintains accuracy, even in tortuous system designs.**
- **Stainless steel construction with plastic and alternative material versions to special order.**
- **Standard versions suitable up to 80°C with all-welded units up to 450°C.**
- **Mounting options include side plate fixing or "Ready to fit" in-duct sections.**
- **No moving parts and minimal maintenance required.**
- **Optional honeycomb flow straighteners and duct flanges available.**
- **Airflow sensing points conform with BSI042 Part 2A.**
- **Log Tchebycheff and Log Linear distribution rules.**
- **All flow grids in size up to 0.64 m² are supplied with a calibration certificate, curve and pressure drop/output signal data. Larger units require on-site calibration.**
- **Differential pressure output signal interface with compatible manometers and pressure transmitters for direct readout and control of air volume flow.**
- **Perfect for HVAC, building management systems, process control, R&D and wind tunnel air flow monitoring.**



U and X flow grids

AIRFLOW™

SPECIALISTS IN AIR MOVEMENT TECHNOLOGY

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CERTIFICATE 152
BS5750 ISO9001 EN29001

How Airflow Grids work

The Wilson Flow Grid consists of a row of tubes with closed ends, parallel to each other and forming an open fence across the duct at right angles to the axis. Some of the tubes are perforated with small holes facing upstream which sense total pressure, whilst other tubes have holes on the downstream side to sense throat substatic pressure. The spacing of these holes conforms approximately with the Log Tchebycheff distribution for direct summing and averaging. The upstream and downstream tubes are connected to separate manifolds which thus provide two average pressure signals. The pressure difference between the manifolds constitutes the output signal.

It has been found by experiment that the ratio of this differential pressure to velocity pressure remains fairly constant over the usable velocity range, the signal strength being up to 2.5 times the duct mean velocity pressure depending upon the size and type of Grid.

Performance

For greatest possible accuracy (±2%), Flow Grids should be calibrated in situ to BS 1042 part 2A; however, if accurate duct internal dimensions are known, the Flow Grid will permit monitoring of volume flow rate to within ±5% without site calibration, providing there is minimal turbulence in the duct due to partial obstructions or sudden drastic changes in direction. Excessive swirl in the duct can cause errors which may be eliminated by the addition of an upstream flow straightening device.

Completing the system

The Wilson Flow Grid is NOT a complete measuring system. To complete the system a transducer is required to convert the differential signal into a usable reading. A basic instrument suitable for this purpose is a liquid-filled manometer which gives a reliable visual reading for continuous monitoring.

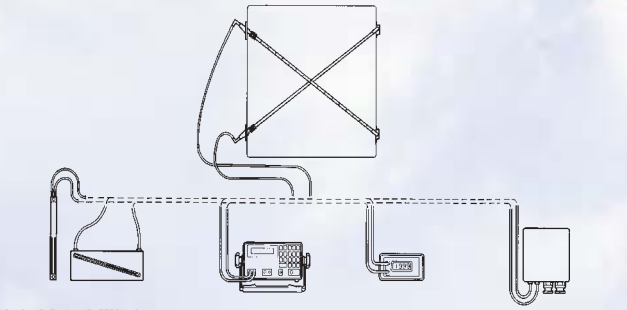
Alternatively, electronic manometers such as the Airflow MEDM5K or PVM100 will provide fast, portable measurements for routine checks of system conditions. For permanent installations such as BEMS and process control a pressure transducer should be chosen to provide compatible outputs for continuous monitoring. The PTS and PTL range of transmitters from Airflow have been selected for their excellent specification and suitability for use with all flow grids.

Contact us for detailed specifications.

SPECIFICATION

Standard range 200mm square up to 2m square
Radial (circular) grid 200mm diameter up to 1m diameter
'U' and 'X' Grid Maximum Diagonal 1.534m
Maximum Diameter 1.510m
A range of non-standard sizes are available from our special products department

A wide range of measurement and control options for all types of Flow Grids are available from Airflow.



FUNDAMENTAL MANOMETERS TO READ DIFFERENTIAL PRESSURE WHICH MAY EASILY BE CONVERTED TO VOLUME FLOW. SENSORS MAY ALSO BE FITTED TO PROVIDE WARNING OUTPUTS.

ELECTRONIC TEST MANOMETERS TO DISPLAY, MEMORISE AND DOWNLOAD PRESSURE, VELOCITY AND VOLUME FLOW READINGS.

POCKET MANOMETERS FOR QUICK AND ACCURATE ROUTINE MONITORING.

PRESSURE TRANSDI FOR PERMANENT MONITORING AND C IN PROCESS AIR MANAGEME

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