

OMEGA'S **LABORATORY-GRADE** BENCHTOP WIND TUNNEL



WT4401-D

Shown calibrating the FMA-902A-V1, sold separately, for more information visit us online.

WT4401-D includes deluxe electronics package for measuring temperature, humidity and barometric and differential pressures.



- ✓ Precise Motor Control for Adjusting Flowrates
- ✓ NIST Calibration Supplied with Each Wind Tunnel
- ✓ Highly Accurate to 1% of Reading
- ✓ Large 101.6 x 101.6 mm (4 x 4") Test Chamber
- ✓ Highly Stable Delta Pressure Sensor and Readout Included with Each Wind Tunnel
- ✓ Fully Instrumented
- ✓ Optional Environmental Monitoring Package of Temp, Humidity, Barometric Pressure and Delta P Available

OMEGA's state-of-the-art wind tunnel is designed to give a highly uniform flow rate over a 152 mm (6") test section. A powerful 12 amp motor with variable speed from 0 to 10,000 RPM is adjustable to give a particular flowrate by a precise motor control unit. Each wind tunnel is supplied with an NIST traceable certificate.

The uniform flowrate is determined by monitoring a highly repeatable differential pressure sensor which has been calibrated to each individual wind tunnel as a system. Each wind tunnel is supplied with two restrictive plates for achieving optimum low flowrates. The established differential pressure measurements versus flowrates are listed from 25 to 9000 FPM. Calibration sheets are included, which makes calibrating different flow sensors simple.

The differential pressure measurement used to establish known flowrates will be affected by barometric pressure and temperature conditions during testing. Depending on the probe being calibrated, humidity may also be a factor.

OMEGA's deluxe wind tunnel package is an environmental monitoring system that measures barometric pressure, room temperature, humidity and differential pressure. By monitoring room conditions, standard differential pressures can be converted to actual differential pressure readings to ensure accurate flowrates.

For testing different probes, a 1/2 NPT connection is available. An assortment of compression fittings is provided to help mount the probe under calibration.

SPECIFICATIONS

Wind Tunnel

Accuracy: 1% rdg
(2% rdg with restrictive plates)

Flow Rates: 25 to 9000 fpm
(0.15 to 45 m/s)

Noise: 95 dBA maximum

Size: 1.5 m L x 431.8 mm H (5' x 17")

Motor

Power: 120 Vac

Current: 12 amps

Speed: 10,000 RPM

Motor Control Box

Power: 120 Vac

Speed Adjustment: 10 turn pot.

Internal Adjustment: Minimum, Maximum, acceleration and current limit

Size: 140 W x 184 L x 89 mm H
(5.53 x 7.25 x 3.5")

Weight: Wind tunnel: 22.5 kg (49.5 lb);

Standard elec. 3.2 kg (7 lb);

Deluxe elec. 7 kg (15.3 lb)

Monitoring Systems

Standard Package:

PX657 127 mm (5") H₂O differential pressure sensor and DP41-S-A meter with analog output in benchtop case

The WT4401-S Wind Tunnel Comes with:

- Wind Tunnel
- Electronics Box*
- Two Restrictive Plates
- Motor Controller
- Two 0.6 m (5') Lengths of Silicone Tubing
- One Package of Brass Compression Fittings with PTFE Ferrules (Sizes 1/8, 3/16, 1/4, and 3/8")
- Six Calibration Report Sheets (3 in Metric Units, 3 in English Units)
- Complete Operator's Manuals for: DP41-S Indicator; Motor; Controller and Wind Tunnel

WT4401-D (Deluxe System)

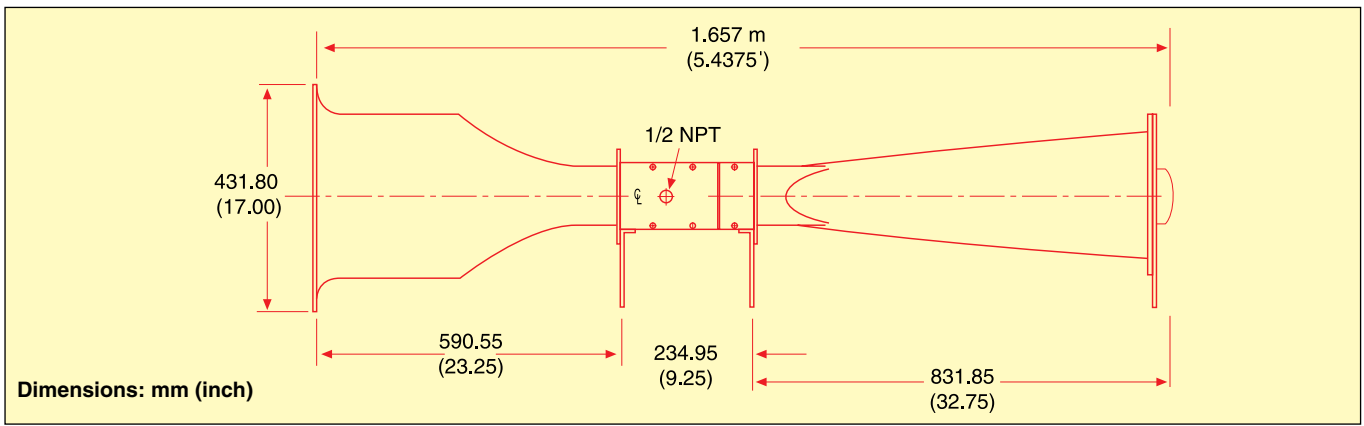
Includes All the Accessories for The WT4401-S Plus:

- Operator's Manuals for all Included Instrumentation and Sensors
- Calibration Sheet for the Barometer

* The WT4401-S comes with standard electronics box. The WT4401-D comes with deluxe electronics box.

Note: All meters used in either the standard or deluxe electronics package have a 10 Vdc analog output.





Deluxe Package:

Same differential system as standard model, plus HX97-A temperature and humidity sensor, PX02C1-16A5T barometric sensor, PSS-D15B power supply, three DP25-E panel meters, and one DP41B-S panel meter. All equipment is enclosed in a heavy duty, air cooled, benchtop metal case. All 4 meters have 0 to 10 Vdc analog outputs.

Wind tunnels come complete with 1/8, 3/16, 1/4 and 3/8" brass compression fittings with PTFE ferrules, two 1.52 m (5') lengths of silicone tubing, operator's manual with NIST calibration data and pressure sensor with benchtop meter.

The intake air flow passage to this precise wind tunnel is a fiberglass-constructed baffle. The honeycomb baffle design insures constant and evenly distributed air intake. The design minimizes turbulent air flow created by movement in front of the intake. The



rear portion of the intake baffle has a profile design that keeps the stream uniform, while decreasing the area to a 101.6 x 101.6 mm (4 x 4") cross-section. The test chamber is 101.6 x 101.6 x 152 mm (4 x 4 x 6") and is constructed

of clear, thick-wall plastic for easy viewing. In back of this test section, the motor pulls the air through the wind tunnel. The motor and intake profiles

utilize fiberglass construction, which minimizes airflow distortion.

A deluxe monitoring package keeps track of ambient conditions as well as the precise differential pressure measurement. The monitoring sensors and instruments are all packaged inside a single powerful housing. Each sensor has an analog output for use with a strip chart recorder or computer data logging system. Humidity, temperature and barometric sensors are enclosed in the benchtop case for monitoring atmospheric conditions which can influence the exact air speed.

The differential pressure cell is connected to the wind tunnel via silicone tubing. The entrance and test chambers' pressures are monitored, which determines true air speed.

Standard and Deluxe Packages Establish Flowrates from 25 to 9000 FPM

Wind Tunnel Configuration	Flow Ranges	
	FPM	M/S
No restrictive plates	1000 to 9000 FPM	5.0 to 45 M/S
Restrictive plate A	250 to 1250 FPM	1.25 to 6.3 M/S
Restrictive plate B	25 to 350 FPM	0.15 to 1.77 M/S

To Order	
Model No.	Description
WT4401-S	Wind tunnel with differential pressure monitor
WT4401-D	Wind tunnel deluxe package (barometric pressure, temperature, humidity and differential pressure monitoring system)
WT4401-S-CAL	Re-calibration, standard wind tunnel
WT4401-D-CAL	Re-calibration, deluxe wind tunnel
TVS-1004	Velocity and temperature measurement system (4 sensors)
HHF42	Hot wire anemometer
FMA-902A-V1	General purpose air velocity transducer, 0 to 1000 FPM (0 to 5 V output)
SA1-K	Type K self adhesive thermocouples with stripped ends (5-pack)
SA1-RTD-B	100Ω self adhesive RTD temperature sensors with stripped ends (3-pack)
SA2C-K	Type K, curved surface, molded silicon self adhesive thermocouple
SA2F-K	Type K, flat surface, molded silicon self adhesive thermocouple
ML4C-143-10	Non-reversible OMEGALABEL® temperature monitors with temperature ratings of 143, 149, 154, and 160°C (10-pack)

Comes complete with wind tunnel and everything you need to calibrate probes quickly. Visit omega.com for the complete listing of all accessories included.

For 220 Vac, add suffix "220V" to model number, no additional charge.

Ordering Examples: WT4401-D, deluxe wind tunnel package, SA2C-K Type K molded silicon self adhesive thermocouple, and FMA-902A-V1, air velocity transducer. WT4401, standard wind tunnel package with HHF42 hotwire anemometer.