Long Win's Thermal Solutions

LonGwin
Fundamental, Forward & First
Since 1985

AMCA 210 Wind Tunnel

Most Complete & Systematic Plan for

Fan Performance & Standard Airflow Rate Generation

Based on AMCA 210-07 Standard

- Structure and nozzle are manufactured according to AMCA 210-07 Standard.

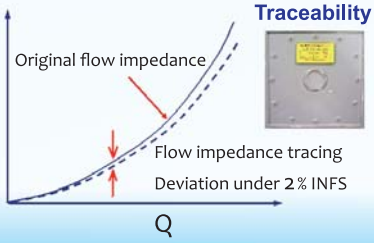


Accuracy Accreditation

- Issue the airflow rate calibration report for each system.

Traceability

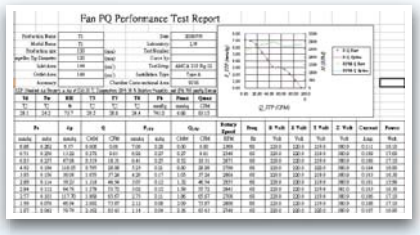
- System resistance test by a standard orifice plate for self-tracing calibration.



PC-Based Control & DAQ

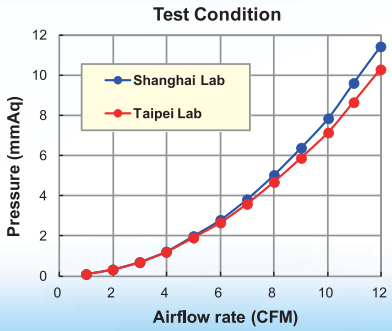
- Select optimized nozzle and pressure range automatically
- Software with a friendly interface and real-time data acquisition and PQ curve
- Output as Excel files with figures

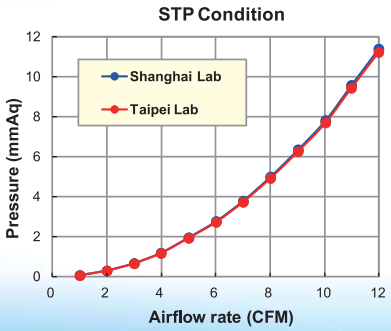




STP Conversion

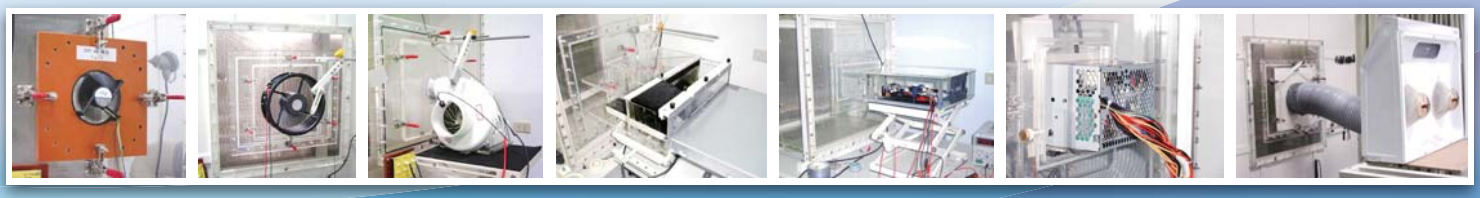
- For one sample, test conditions are different at two labs.
- After converting SRC curve to STP condition, the curves are comparable and overlapping well.





Applicable for various airflow rate, pressure and specimens

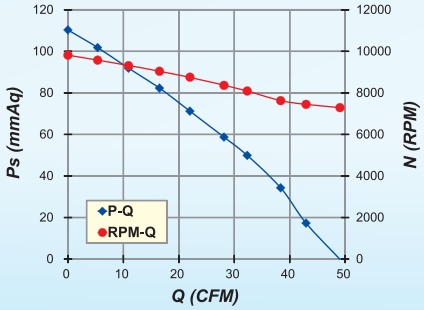
- Airflow rate: 0.2 ~ 30100 CFM
- Pressure: 0 ~ 8000 Pa
- Fan, blower, server, BTX, power supply, ventilation facility, air conditioner, automobile, etc.



3 Experimental Items

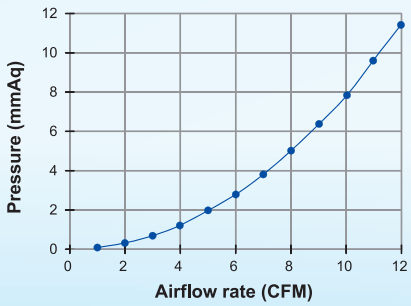
PQ curve

- The fan performance curve with pressure (P) and airflow rate (Q).



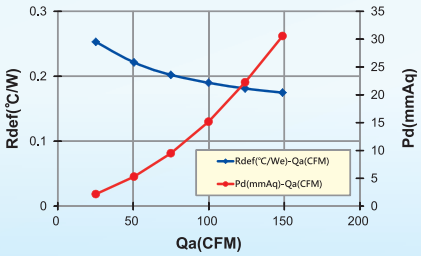
SRC curve

- Applicable to system resistance measurement for PC, Notebook, and server.



RQ curve

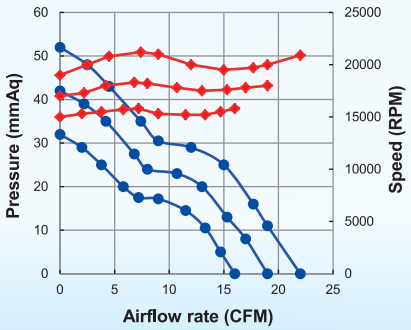
- To analyze thermal resistance (R) and the correlation of P and Q.
- A thermal wind tunnel or standard TTP can be cooperated.



5 Operational Modes

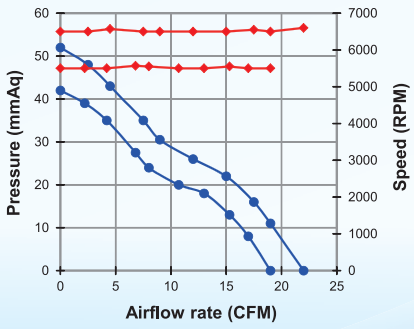
Constant voltage

- Apply certain DC or AC power to specimen.



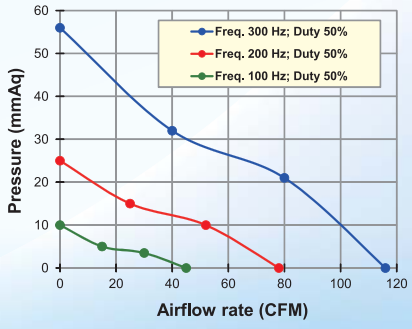
Constant RPM

- RPM can be controlled by DC voltage or PWM.



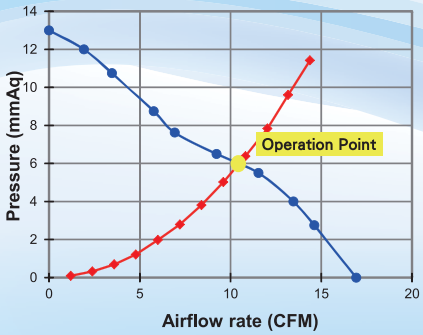
PWM mode

- Adjusting frequency & duty cycle under a constant DC voltage.



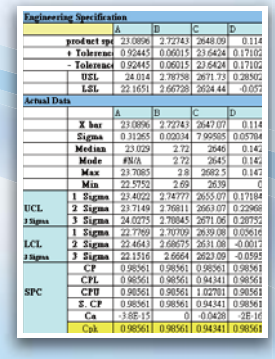
Operation Point (OP) check

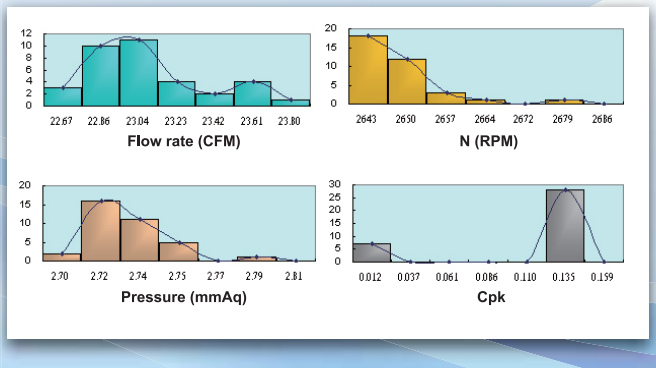
- Providing a required flow rate (Q) : Static pressure (Ps) > OP : The fan is OK. (OP-Uncertainty) < Ps : The fan is NG.



Cpk mode

- A statistical method to analyze the mass production performance while doing quality assurance.

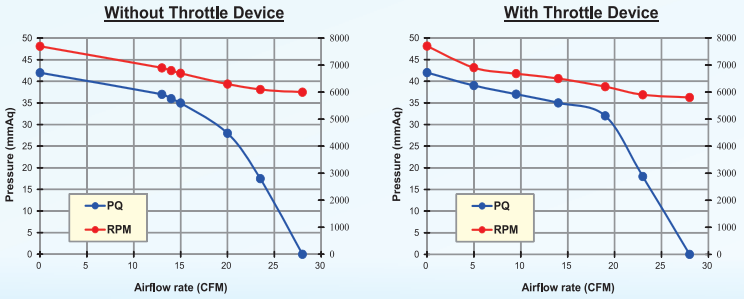




Optional Devices

High Static Pressure Throttle Device

- Solve overlapping problem at a high P and low Q range.
- PC-controlled throttle device, area resolution is 1/5000
- Suitable for testing either at high-static or normal pressure.
- Either manual or automatic control is acceptable.



LW-9240 Multi-Fan Test Device

- Applicable for multi parallel or serial fans
- Measuring parameter: DC voltage, current & RPM
- Power source for specimens: external power supply (DC 0~30V & 0~3A).

200T Thermal Wind Tunnel

- With a flange for LW-3122 connection.
- Temperature: 25-60℃
- In order to transfer heat to test section, the minimum flow rate is 60 CFM as the working temperature is 70℃

LW-3122 Thermal Test Platform

- Testing channel dimension:
  Maximum: 200 (H) × 200 (W) × 800 (L) mm
  Minimum: 25 (H) × 50 (W) × 800 (L) mm
- The height can be adjusted from 1U to 4U.

LW-9402 Differential Pressure Measurement Device

- Range: 0 ~ 25.4 mmAq
- Accuracy: ±0.25%, with a digit display
- Communication interface: RS-485

LW-9052 Press Load Apparatus

- Press load range: 0 ~ 100 Kgf
- Press load accuracy: ±0.1 %
- Communication interface: RS-485
- Max. loading displacement: 20 mm
- Max. unloading displacement: 150 mm

LW-9053 Heat Flux Measurement Device

- A set of 25.4 × 25.4 meter bar meter
- 60V, 3A power supply with PC-based control
- 3 sets of T-Type temptrature sensors
- Digit displays with RS-485 interface

LW-9032 Hot Wire Anemometer

- Wind speed range: 0.1 ~ 10 m/sec.
- Hot wire structure, made by TSI, USA.
- Accuracy: ±2%
- A digit display with RS-485 interface

LW-9046 Temperature Measurement Device

- 6 sets of T-type thermocouple and connector
- Accuracy: ±0.5℃
- Digit displays with RS-485 interface
- CJC offset

Standard Models


9014


9081


9015


9185


9120


9293


9545


9347


9266


9348

Models	9014	9081	9015	9185	9120	9293	9545	9347	9266	9348
Based on	AMCA 210-07 Standard									
Types	Fig. 12 and 15, 2-in-1 structure							Fig.12 structure		
Airflow rate (CFM)	0.2~18	1.6~60	2.4~250	2.9~1000	100~5000	230~30100	9~2000	0.2~18	2.4~250	4~1000
Airflow rate accuracy	<3.5% INFS	<3.5% INFS	<3.5% INFS	<3.5% INFS	<3.5% INFS	<3.5% INFS	<3.5% INFS	<3.5% INFS	<3.5% INFS	<3.5% INFS
Flow rate repeatability error	<2%	<2%	<2%	<2%	<2%	<2%	<2%	<2%	<2%	<2%
Static pressure (mmAq) *with throttle device	0~30 0~200*	0~30 0~200*	0~30 0~200*	0~30 0~200*	0~150	0~150	0~800	0~20	0~20 0~100*	0~20 0~100*
Max.open window for testing fan (cm)	8 x 8	8 x 8	30 x 30	30 x 30	60 x 60	100 x 100	60 x 60	8 x 8	24 x 24	40 x 40
PC-based control and data acquisition	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
PQ and SRC test	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
RQ test with 200T/3122	--	Optional	Optional	Optional	--	--	--	--	--	--
High static pressure throttle device	Optional	Optional	Optional	Optional	--	--	--	--	Optional	Optional
Multi-fan test device	Optional	Optional	Optional	Optional	--	--	--	Optional	Optional	Optional
Constant voltage, constant RPM, OP, Cpk modes	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
PWM mode	Included	Included	Included	Included	Included	--	Included	Optional	Optional	Optional
PC-based AC PSU	--	--	--	Optional	Optional	Optional	Optional	--	--	Optional
Axial force and torque measurement	--	--	--	Optional	Optional	Optional	Optional	--	--	--
Length (cm)	250	250	360	460	800	1200	450	160	220	260
Width (cm)	60	60	85	180	260	350	180	60	70	80
Height (cm)	160	160	180	190	230	260	200	140	160	190
Weight (kg)	370	370	750	1500	2800	9000	2600	380	400	550
Power source	AC 220V 5 Amp 1-phase	AC 220V 5 Amp 1-phase	AC 220V 5 Amp 1-phase	AC 220V 20 Amp 3-phase	AC 220V 40 Amp 3-phase	AC 380V 60 Amp 3-phase	AC 380V 50 Amp 3-phase	AC 220V 5 Amp 1-phase	AC 220V 5 Amp 1-phase	AC 220V 10 Amp 3-phase

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