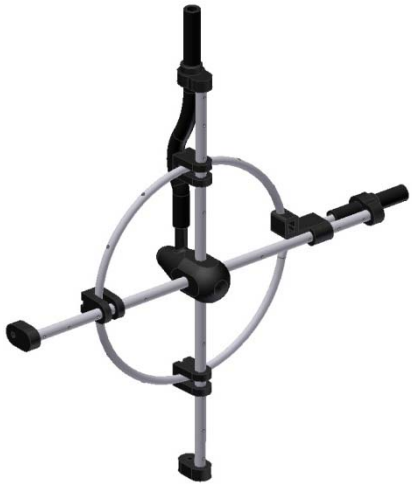
Nepcross Air Flow Station
Specification and Installation Instructions

Models
CF-06: 6” (15.25cm)
CF-08: 8” (20.30cm)
CF-10: 10” (25.40cm)
CF-12: 12” (30.50cm)
CF-14: 14” (35.56cm)
CF-16: 16” (40.64cm)


Nepcross

Description
Operational velocities of a modern VAV box are more or less 150 FPM to 700 FPM. That translates to a very low signal of about 0.001” to 0.023” respectively. The Nepcross Air Flow Station mechanically amplifies the differential pressure signal making air velocity measurement in VAV boxes possible. This is accomplished by its unique circular static pressure amplification probe and the geometry of the total pressure radial probes. The total pressure ports follow the ASHRAE Standard 62.

The total velocity signal is an average summation of individual total pressure signals collected from a center of each equal concentric area. The total pressure signals are physically transmitted to the central hub and the resulting average total pressure signal is exported to the High Port of the electronic transducer.

The static pressure amplification circular probe collects the pressure signal from strategically located pressure ports along its outer diameter. The average static pressure signal is exported to the Low Port of the electronic transducer. The electronic transducer converts the 2 signals into a voltage that is proportional to the Velocity Pressure Signal.

Typical Application
Independent box manufacturers have the choice to use the Nepcross Air Flow Station with different VAV controllers or, for more significant results, to use with Neptronic VAV controllers, which have tailored curves in the lower velocities.

Applications
- Pressure independent VAV boxes

Features
- Mechanical amplification of differential pressure signal
- 2 outputs (total pressure and static pressure)
- Advanced design minimizes pressure loss and white noise

Technical Specifications

Description	CF-06	CF-08	CF-10	CF-12	CF-14	CF-16
Inlet Diameter	6” (15.25 cm)	8” (20.30 cm)	10” (25.40 cm)	12” (30.50 cm)	14” (35.56 cm)	16” (40.64 cm)
Area	0.196 ft^2 (0.018 m^2)	0.349 ft^2 (0.032 m^2)	0.545 ft^2 (0.050 m^2)	0.785 ft^2 (0.073 m^2)	1.069 ft^2 (0.099 m^2)	1.396 ft^2 (0.130 m^2)
Velocity Constant	2812 FPM (14.3 m/s)	2740 FPM (13.9 m/s)	2841 FPM (14.4 m/s)	2822 FPM (14.3 m/s)	2666 FPM (13.5 m/s)	2837 FPM (14.4 m/s)
Velocity Pressure Constant	0.49	0.47	0.50	0.49	0.45	0.50
K Factor	552 CFM (261 l/s)	956 CFM (451 l/s)	1550 CFM (732 l/s)	2216 CFM (1046 l/s)	2850 CFM (1345 l/s)	3961 CFM (1869 l/s)
Amplification Factor F	2.60	2.30	2.30	2.15	2.15	2.10
Total Pressure Ports (ASHRAE Standard 62)	12	12	16	16	20	20
Velocity Range	300 to 3,000 FPM (1.5 to 15.2 m/s)					
Temperature Range	-40°C to 80°C (-40°F to 176°F)					
Materials	Aluminum & PC/ABS					

Mechanical Installation

Prepare Duct Collar (Fig. 1)

1. Drill two 1/2” (12.7mm) diameter holes through the duct collar for positions A and B.
2. Directly opposite positions A and B, drill two 3/16” (4.76mm) diameter holes through the duct collar for positions C and D.

Prepare Nepcross (Fig. 2)

3. Connect the supplied 1/4” (6.35mm) tubing to the total pressure output of the Nepcross (AA).
4. Connect the supplied 3/16” (4.76mm) tubing to the static pressure output of the Nepcross (BB).
5. Position the Nepcross perpendicular to the duct and ensure that the flow ports are facing the air flow.

Install Nepcross (Fig. 1 & 2)

6. Pass the tubing of the total pressure and static pressure outputs through the appropriate 1/2” (12.7mm) holes (A and B).
7. Simultaneously insert ends AA and BB of the Nepcross into the appropriate 1/2” (12.7mm) holes (A and B).
8. Align ends CC and DD of the Nepcross with the appropriate 3/16” (4.76mm) holes (C and D).

Affix Nepcross to Duct Collar (Fig. 3)

9. Affix the Nepcross into position with the supplied #8 screws through positions C to CC and D to DD.

Connect to Neptronic VAV Controller (Fig. 3)

10. Using 1/8” (3.175mm) tubing, connect the Total Pressure output of the Nepcross to the HIGH Total Pressure port of the Neptronic VAV controller.
11. Using 1/8” (3.175mm) tubing, connect the Static Pressure output of the Nepcross to the LOW Static Pressure port of the Neptronic VAV controller.

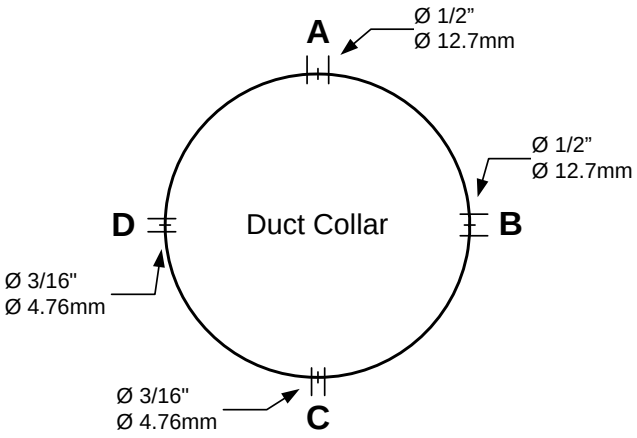


Figure 1: Duct Collar

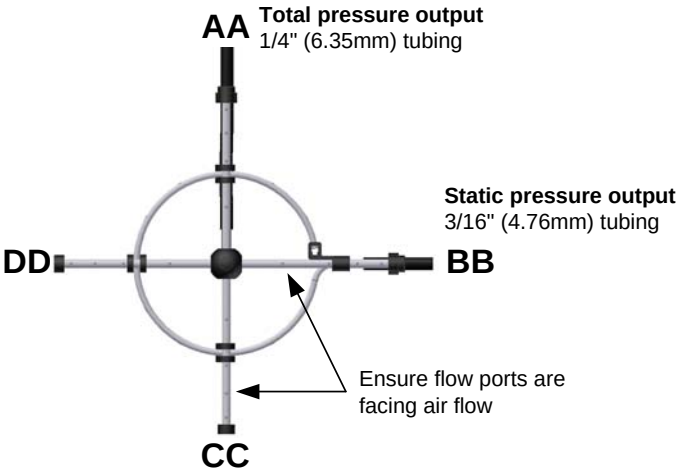


Figure 2: Nepcross

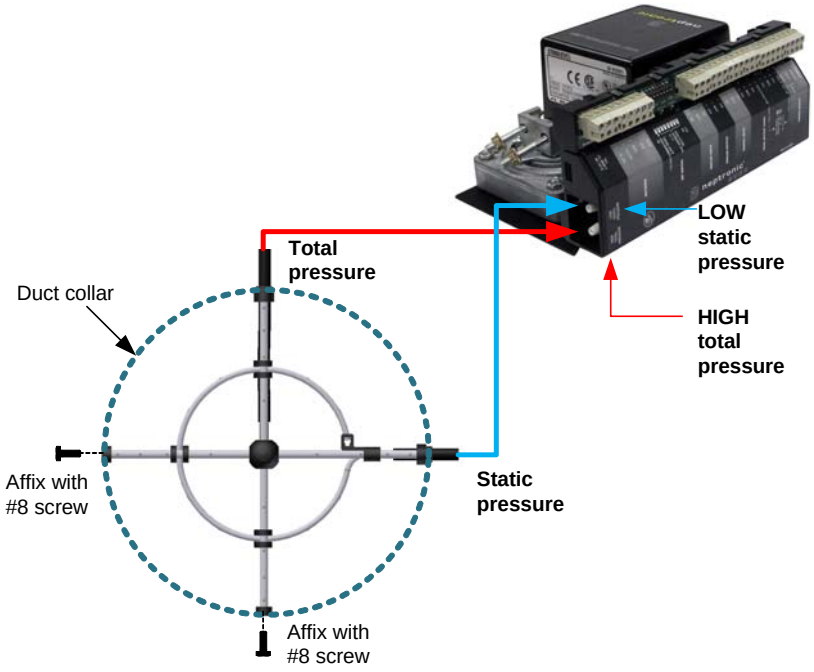
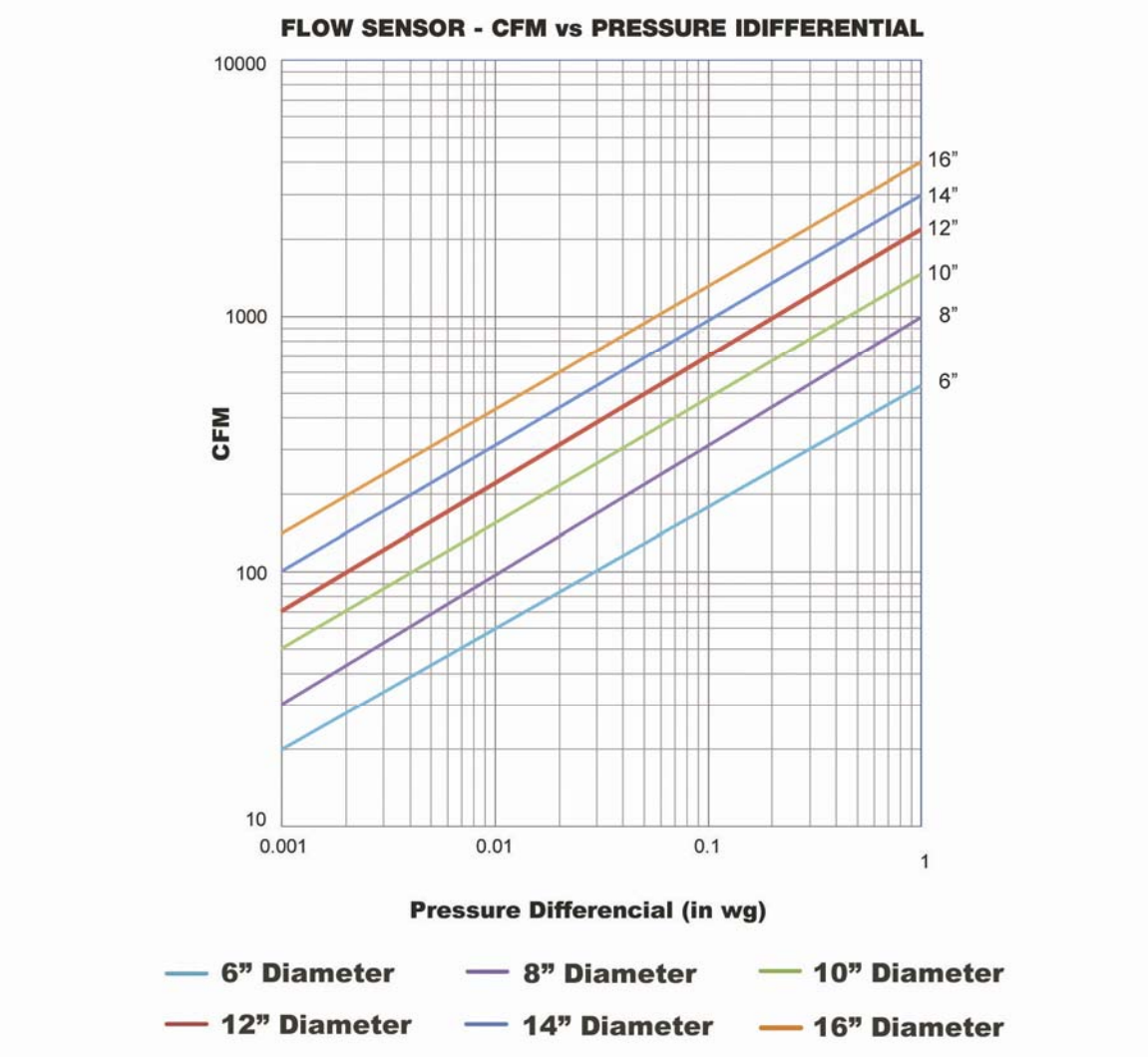


Figure 3: VAV Controller

Flow Sensor Graph



Notes

	Recycling at end of life: please return this product to your Neptronic local distributor for recycling. If you need to find the nearest Neptronic authorized distributor, please consult **www.neptronic.com**.

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