

## Flow Finders

The Flow Finder System of Measurement™ is the basis for the development of System Studies' full line of cable pressurization monitoring and maintenance products. Simple in concept and design, Flow Finders™ provide the ability to accurately measure flow consumption at selected locations in the air pressure system. They are used at central office panels, at multiple locations in the air pipe, at air pipe manifolds, remote dryers, and virtually anywhere accurate flow readings are required.



Flow Finders are equipped with an internal orifice that creates a slight pressure differential between the incoming (uphill) air flow and the outgoing (downhill) flow. This pressure differential is converted into an accurate flow reading either manually using a Flow Gauge™ or automatically by PressureMAP™ via a 289H LSS™ monitor and High Resolution Flow Transducer™.

Flow Finders are available in seven flow ranges: 0-9.5 SCFH (270 LPH), 0-19 SCFH (540 LPH), 0-47.5 SCFH (1350 LPH), 0-95 SCFH (2700 LPH), 0-190 SCFH (5380 LPH), 0-475 SCFH (13,500 LPH) and 0-950 SCFH (26,900 LPH). Each Flow Finder is color coded to match one of the corresponding colored scales on the Flow Gauge. Both the Flow Gauge and the High Resolution Flow Transducer have the capability of reading Flow Finder flow information up to twice the indicated value. For example, the 0-95 SCFH Flow Finder will provide readings up to 190 SCFH (5380 LPH) with unparalleled accuracy.

Flow Finders are available individually or as integral components in System Studies' central office and field air pressure equipment.

### SPECIFICATIONS

#### Material

**Standard Ranges:** System Studies' four original Flow Finder models (0-9.5, 0-19, 0-47.5 and 0-95 SCFH) are constructed of molded thermoplastic nylon, and the overall length is 3.0 inches (7.6 cm). Input and output ports are ¼ inch (0.6 cm) NPT female threads, protected with stainless steel end caps (0.020 inches/.05 cm thick). The Flow Finder contains a precision stainless steel orifice which results in a small pressure drop directly related to the amount of air flow. Mechanical parts (tank valves and threaded anchor stud) are brass, nickel plated. Individual standard range Flow Finders are supplied with thermoplastic nylon mounting brackets and pipe tags.

**High Ranges:** Our high range Flow Finders (0-190, 0-475 and 0-950 SCFH) are constructed of nickel plated brass with ¾ inch (1.9 cm) NPT-F threads. They measure 4¾ inches (10.2 cm) long, 1½ inches (3.8 cm) wide, and 2 inches (5.08 cm) high. Each model contains an internal, calibrated stainless steel orifice and nickel plated brass sampler valves. Individual high range Flow Finders are supplied with a stainless steel mounting bracket.

#### Performance

The pressure drop across Flow Finders (all ranges) is 0.188 PSI/1.3 kPa at full air flow, and 0.05 PSI/1.34 kPa at half flow. Accuracy of air flow reading is +/- 1% of full scale reading.

#### Installation

Flow Finders are designed to be placed in an air pipe system in order to measure the air flow at various locations. Note: 0-190 and 0-475 SCFH Flow Finders are installed in Power Pipe Systems™ (1 inch air pipe) only. 0-950 SCFH Flow Finders are used in Central Office Delivery System monitoring applications.

Two pipe fittings with bonding strap are required when installing a Flow Finder in an air pipe system. Flow Finders can be installed in 3/8 inch O.D. plastic tubing by using 1/4 inch NPT-M to 3/8 inch O.D. tubing adapters.

It is recommended that Flow Finders be installed in the following locations:

Location	Recommended Range
Air Dryer Output (to C.O. Manifold)	950 SCFH/26,900 LPH
Pipe Alarm Panels (Power Pipe System*)	47.5 or 95 SCFH/1350 or 2700 LPH 475 SCFH/13,500 LPH
Air Pipe (in line) (Power Pipe System*)	47.5 or 95 SCFH/1350 or 2700 LPH 190 or 475 SCFH/13,500 LPH
Air Pipe Junctions (Power Pipe System*)	47.5 or 95 SCFH/1350 or 2700 LPH 190 SCFH/5380 LPH 475 SCFH/13,500 LPH
Cable feed from Manifold	9.5 SCFH/270 LPH
Pole Mounted Compressor	47.5 SCFH/1350 LPH
Bypass Valves	9.5 SCFH/270 LPH

\* The Power Pipe System uses a combination of 190 SCFH, 475 SCFH and lower range (47.5 and 95 SCFH) Flow Finders.

#### Flow Readings

Flow Finders are provided with two tank valves and locking stud to accommodate Flow Sampler from manual Flow Gauge.

A High Valve Assembly™ (Part No. 9800-3030) enables remote flow readings to be taken at distances up to 50 feet (1524 cm) from the Flow Finder. A twin hose provides the necessary connection.

When used on assemblies with High Resolution Transducers, Flow Finders are connected to pneumatic ports of transducer using 1/8 inch (0.3 cm) pre-formed stainless steel tubing.

The words Flow Finder System of Measurement™, Flow Finders™, Flow Gauge™, PressureMAP™, 289H LSS™, High Resolution Flow Transducer™, Power Pipe Systems™, and High Valve Assembly™ are trademarks of System Studies Incorporated.

**MODEL DESCRIPTIONS**

**9800-3003 Flow Finder, 0-9.5 SCFH, Bracket, No Fittings**



This Flow Finder body is equipped with a 0-9.5 SCFH internal orifice, two standard tank valves, a locking stud for the Flow Gauge sampler, two protective end caps, and a plastic mounting bracket.

Its color-coded green label matches the scale on the Flow Gauge.

**9800-3005 Flow Finder, 0-19 SCFH, Bracket, No Fittings**



This slightly higher range Flow Finder model has the same components as the 0-9.5 SCFH version described above, except that it is equipped with a 0-19 SCFH orifice. Its red label matches

the scale on the Flow Gauge.

**9800-3006 Flow Finder, 0-47.5 SCFH, Bracket, No Fittings**



The 0-47.5 SCFH Flow Finder is designed for slightly higher flow rates. It includes the same basic Flow Finder components described for other models, but it is supplied with a blue-colored label for quick reading reference.

**9800-3026 Flow Finder, Special Restrictor**



This modified Flow Finder is equipped with a special orifice that intentionally restricts air flow. It is designed to be installed in rare situations where there is a known

leaking cable that cannot be immediately repaired. The Special Flow Restrictor prevents the leak from draining delivery pressure from the system, while allowing a minimal amount of pressure protection to the cable.

**9800-3008 Flow Finder, 0-95 SCFH, Bracket, No Fittings**



The 0-95 SCFH Flow Finder is designed for high flowing pipe alarm panels and pipe installations. This model includes the basic Flow Finder components (without the check valve) but it is supplied with a purple label, which references the

appropriate scale on the Flow Gauge.

**9800-3190 Flow Finder, 0-190 SCFH, Bracket, No Pipe Fittings**



This 0-190 SCFH High Range Flow Finder is designed for use with 1" air pipe systems (Power Pipe Systems). It provides accurate flow readings up to 190 SCFH, with extended reading capabilities to 380 SCFH. The Flow Finder is supplied with mounting bracket and valves

for taking readings with the Flow Gauge.

**9800-3097 Flow Finder, 0-475 SCFH, Bracket, No Pipe Fittings**



This 0-475 SCFH High Range Flow Finder is designed for use with 1" air pipe systems (Power Pipe Systems). It provides accurate flow readings up to 475 SCFH, with extended reading capabilities to 950 SCFH. This Flow Finder is supplied with mounting bracket and valves

for taking readings with the Flow Gauge.

**9800-3098 Flow Finder, 0-950 SCFH, Bracket, No Pipe Fittings**



In order to monitor air dryer pressure and flow rates in a central office monitoring design, System Studies also provides a 0-950 SCFH Flow Finder. It is recommended that one of these devices be installed in both the low and high side output pipes from the air

dryer (assuming both are being used). The Flow Finders are then pneumatically tubed to High Resolution Dual (pressure/flow) Transducers installed on rack panel equipment.

**ASSOCIATED TOOLS**

**9800-3100 Tool, Flow Gauge**



The Flow Gauge is a measurement device that converts the pressure differential created by the Flow Finder into an accurate flow reading. Using a "quick connect" sampler assembly, the Flow Gauge attaches directly to the two sampler valves located on the Flow Finder.

It displays output in four color-coded flow ranges, corresponding to the output of each of the four Flow Finder ranges. A "times two" button on top of the gauge makes it possible to read flow rates up to twice the maximum rated flow range of the Flow Finder being read.

**9800-3508 Tool, Air Pipe and Tubing Cutter**  
**9800-3509 Tool, Air Pipe Tubing Cutter, Replacement Blades**



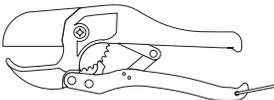
This air pipe and tubing cutter is the ideal tool to use when installing Flow Finders and other pressurization system components in an air pipe. Using this tool will ensure a clean, 90 degree pipe cut and will prevent the pipe from going out of round.

**9800-3510 Tool, Standard Jaw Pinchers**



These Jaw Pinchers can be used during the installation of High Valve Assemblies, High Resolution Flow and Dual Transducers™ and Flow Finder Panels™. The Jaw Pinchers are used to cleanly cut and separate twin tube hose. The tool also doubles as a crimper to conveniently crimp hose clamps onto barbed valve fittings.

**9800-3505 Tool, Air Pipe Cutter, Power Pipe**



This hand-held plastic pipe cutter simplifies the task of making precision crosscuts of Power Pipe (1" O.D.). The tool uses a ratchet mechanism and razor sharp blade to grip and cut the plastic tubing. It is used with the Power Pipe Reamer (Part No. 9800-3504) when installing Power Pipe connector fittings.

**ASSOCIATED EQUIPMENT**

**9800-3010 Flow Finder, Assembly, High Valve**



The High Valve Assembly provides improved access to Flow Finders or High Resolution Flow and Dual Transducers that are installed in inaccessible locations. Using the High Valve Assembly can extend the reading point of the Flow Finder or transducer up to 50 feet away from the actual installation by using tubing of any length. The assembly includes 15 feet of twin Santoprene tubing (System Studies Part No. 9800-3031) to fit most needs. The assembly eliminates the need to enter utility holes to take flow and pressure readings. Available individually or in a box of six (Part No. 9800-3030). Requires Flow Finder and the Jaw Pinchers tool (Part No. 9800-3510). These items must be ordered separately.

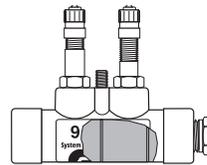
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**9800-3011 Flow Finder, Assembly, Pair Pipe**



The Pair Pipe Monitoring Assembly makes it possible to take readings from a Flow Finder installed in a pair pipe splice case without having to open the case. The assembly extends the Flow Finder reading location to a point up to 10 feet away from the splice location. The assembly is supplied with all necessary installation components except the Flow Finder, which must be ordered separately.

**9800-3015 Flow Finder, Calibrated Leak**



The Calibrated Leak Flow Finder is used with buffer pipe to prevent moisture from accumulating in the pipe. The device incorporates the use of a 0-9.5 SCFH Flow Finder and a 1/4" NPT brass plug with a small hole drilled through the center. Placed at the end of a buffer pipe, the device permits approximately 1 SCFH of air to escape, thus keeping the pipe free from moisture buildup.

**9800-3031 Flow Finder, Twin Tubing**



This part number designates a 50 foot quantity of Santoprene twin tubing. The tubing is used to connect all Flow Finder Measurement Equipment (High Resolution Transducer, High Valves, Flow Finder Panels, etc.) with the Flow Finders.

**9800-3031-C Flow Finder, Twin Tubing, 2,000 Foot Reel**

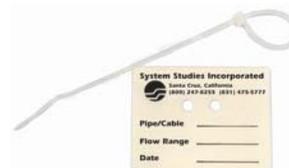
In order to offer quantity pricing and greater availability of twin tubing for installation crews and maintenance technicians, we now offer twin tubing in 2,000 foot reels. Like the 50 foot quantity (Part No. 9800-3031), this tubing is provided with tracer ridge to assist in the proper connection from Flow Finder to transducer or high valve.

**9800-3039 Flow Finder, Jumper Strap**



This jumper strap provides electrical continuity when a Flow Finder or other cable pressurization system component is spliced into an air pipe. The strap is made of stranded, insulated 12-10 copper wire, and it is compatible with most air pipe connectors.

**9800-3515 Pipe/Power Pipe, Cable ID Tags**



These Cable ID Tags and ties are supplied in a box of 100. As the name indicates, they are used primarily to record cable numbers and additional information such as cable length and flow rate. The tags are typically used in both central office and field locations.

