

ISOKINETIC SOURCE SAMPLING EQUIPMENT- METHOD 17

The Apex Instruments Standard Method 17 and 201A Heated Probe for sampling particulate matter. Multiple fitting arrangements and filter assemblies are available with an in-stack filter. Features a 1" diameter sheath constructed from corrosion resistant stainless steel, modular offset 3/8" pitot tip, 1/4" stainless steel quick connects, Type-K thermocouples for stack & probe temperature, probe heater, orsat line, and small parts package. Standard lengths are 3' to 16'. Longer lengths and custom orders are



Apex has a large selection of Button-Hook Nozzles in multiple materials. Determining the size needed for isokinetic sampling depends on the stack gas velocity. Determining the material depends on the stack temperature and the sampling method. We provide technical support and can help with configuration.



Unique to Apex Instruments, the Stainless Steel Nozzle Shank has integrated Ferrule with O-Ring Groove. The most popular nozzles are constructed from seamless 316 stainless steel and can be coated with FEP or SilcoSteelCR®.

Standard sampling nozzles are 4" long and have a 5/8" o.d. shank for attaching to the probe union. Other sizes and configurations are available. Nozzles must be measured and calibrated before initial use.



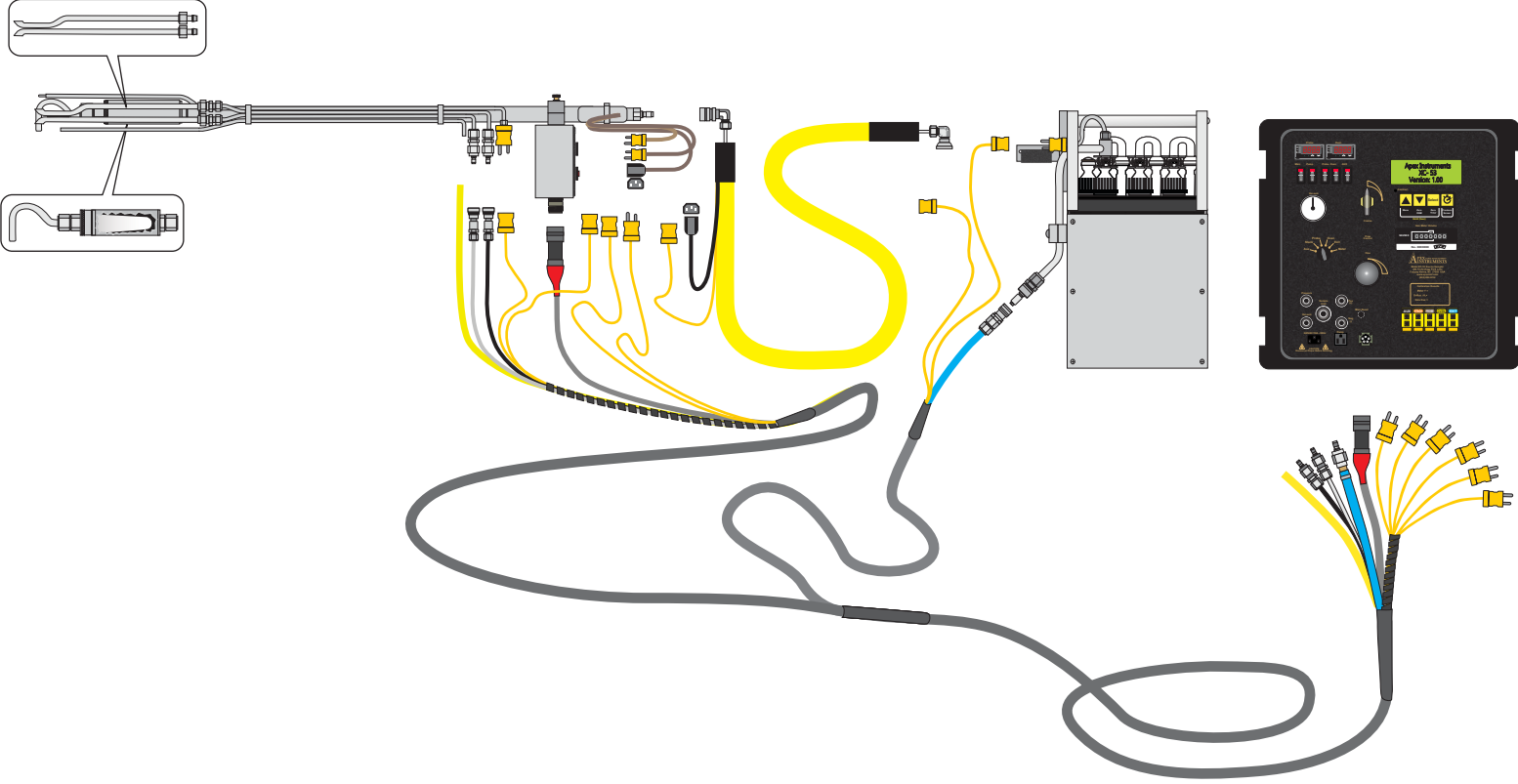
Other nozzle materials include PTFE Lined, Alloy, Inconel, Borosilicate Glass and Quartz

Type-S Pitot Tubes are used to measure gas velocities. In source testing, much of the work is concerned with flowing gas streams. The source tester must generally calculate the volumetric flow rate of stack gas as well as the flow rate of the gas through the sampling apparatus.



Baseline coefficient value is 0.84. Wind tunnel calibration services are available upon request.

Apex Instruments manufactures Type-S pitot tubes in accordance with the Method 2 design specifications. A wide variety of materials, sizes and configurations are available. The most common are constructed from either 1/4" or 3/8" OD stainless steel or Alloy 600 tubing.



The SFA-2590 Stainless Steel Filter Assembly is designed to provide a positive seal against leakage from the outside or around the filter. The Thimble Filters are made of seamless Borosilicate Microglass fibers with an efficiency



The UA-3J connects to umbilical 4-pin circular connector and provides power to three straight blade receptacles. Clamps to 1/2" sample line or GA-100 adapter. The UA-3J is used in conjunction with the Compact Method 5, Method 8, Method 17 and in other sampling situations in which power for the probe is not available due to the absence of a heated filter box.



The SB(F)-6 Impinger Case is constructed from thick aluminum (to reduce cracking) and contains a thick plastic impinger container with a durable polyethylene pre-punched foam insert for holding the impinger bottles in place.

Designed with a rugged handle and high strength brackets for mounting strain reliefs, the impinger case easily allows for quick impinger changes between test runs.

The Heavy-Duty non-Regulated Heated Sample Lines are custom manufactured to be rugged, lightweight and flexible. The heated core is insulated with braided carbon fiber. The bundle is protected by a tough high-temperature silicone coated fiberglass sleeving.



GH Series Impingers feature the ability to safely remove the impinger insert and easily removes stuck inserts which dramatically reduces the risk of breaking glassware during removal.



Easier recovery of reagents through side arm more reliable seal between impinger and insert interchangeable with current GN Series Impingers.

Connection to Glassware Train with #28 Ball and Socket Connections. Impinger Insert Connection with tapered and threaded sealed with cap and silicone gasket insert is stabilized with tapered interior.

The GH-SEP Impinger Insert Removal Tool is included with every set of GH series Impingers. To use the insert removal tool simply snap the tool in place, unscrew the Cap and easily remove the insert!



Split Umbilical Cables are designed for added versatility for use in rigid and flexible configurations. They are constructed with the sample line and exit thermocouple split to the specified length. Split umbilicals are used in flexible systems where the filter compartment is separated from the impinger box with a flexible sample line as in Method 17, Flexible Method 5 and Compact Method 5 configurations. The umbilical lengths are specified according to overall length. Comes with standard stainless steel quick connects. Cable comes with large portable bag with straps.



- Recommended Method 17 Sampling Kit Components Include:**
- SFA-2590 In-stack Filter Assembly (3 units)
 - Glass Fiber Thimbles, (10 pack)
 - Method 17 Probe Sheath with Tube Heater and liner with Quick Connect
 - Heated Sample Line , insulated with PFA liner
 - 30' Split Umbilical Cable
 - Power Box Adapter UA3J
 - SB-6 Impinger Case includes strain reliefs for sample line and umbilical cable
 - Stainless Steel Nozzle Set
 - Glass Impinger set



SPECIFICATIONS

Dry Gas Meter (DCM):
SK25EX, measurement principle-gas displacement, easy-to-read numeric index with leak check wheel, Qmax 41 lpm at 150 Pa., Qmin 0.26 lpm, Totalizer Capacity 9999 cubic meter, Resolution 0.2 Liter, Cyclic Volume 0.7 liters, Type-K Thermocouple for exit temperature

Display:
4x20 character back-lit transfective liquid crystal display, viewing area 74 mm x 45mm, operating temperature -20 to 70°C

Flow Meter:
Precision stainless steel venturi Internal sample pump: Dual head diaphragm, 70 lpm free flow, 21 lpm @ -50kPa, max vacuum -85 kPa, 24 VDC brushless motor

Temperature Measurement:
Cold junction compensated type-K thermocouple-to-digital converter °C/°F selectable, -200°C to 1372°C range, (-328°F to 2502°F), 6-channel rotary switch, up to 5 addition type-K thermocouple inputs, standard size jacks

Probe and Oven Temperature Control:
Fuji PXR3 compact, 1/32 DIN self-tuning PID temperature controller with 3 button keypad, SSR Driver for 25 amp solid-state relay, type-K thermocouple jack for input.

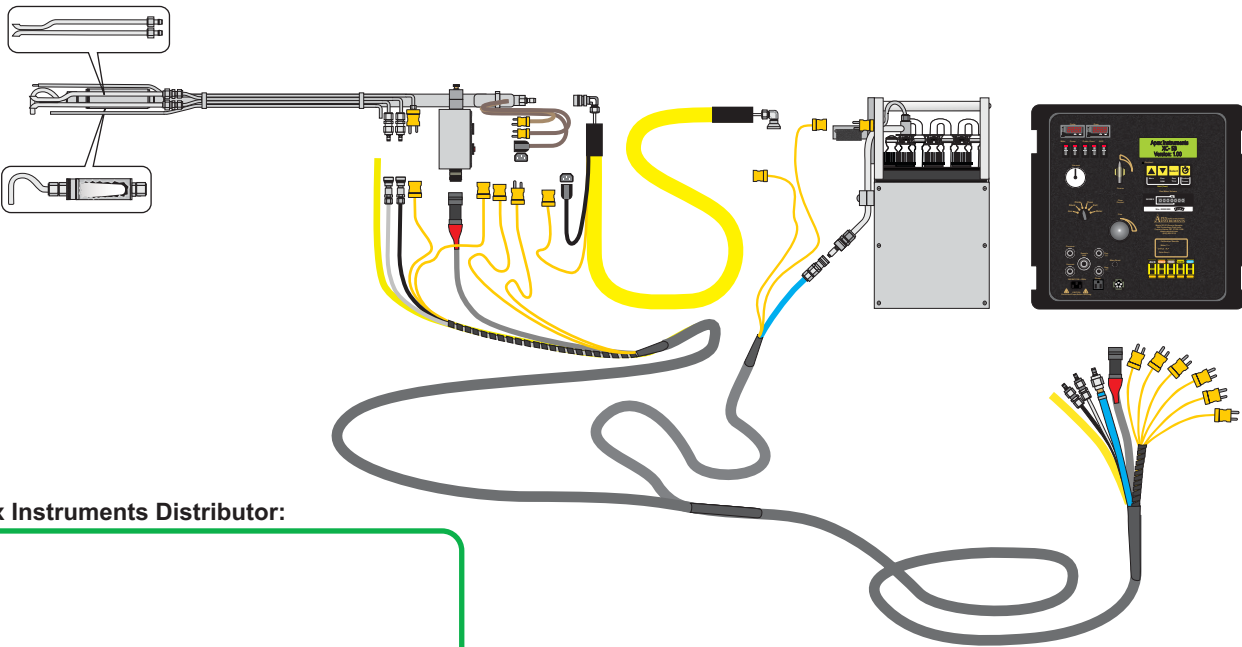
Pressure Transducers:
High-resolution digital sensor, factory-calibrated, and temperature-compensated -20C to 70C, proof pressure 49 kPa, accuracy better than 0.25%
ΔP +/- 5.0" (+/-1245 Pa) range bi-directional with 0.001" (1 Pa) Resolution
ΔH +/-5.0" (+/-1245 Pa) range bi-directional with 0.01" (1 Pa) Resolution

Vacuum gauge:
Bourdon tube, dual scale, 0 to -30" Hg, 0 to -100kPa.

Umbilical Connection:
Electrical multi-conductor circular connector, instrumental grade stainless steel quick-connects, sample Inlet: 1/2", pitot connections: 1/4" Type-K thermocouples inputs: Aux, Stack, Probe, Oven, Exit

Power Supply:
120VAC/60 Hz 15 amps max. or 240VAC 50 Hz 10 amps max., IEC C-13 inlet

Dimensions: H17" x W17" x D12" (43 cm x 43 cm x 30.5 cm)



Your Apex Instruments Distributor:



MODEL XC-53 SOURCESAMPLER



Introducing:

XC-53 Isokinetic Sampling Console

The new **XC-53** from Apex Instruments is a low-cost entry-level metering console for isokinetic sampling. The console features our advanced **Peak 32** microcontroller module (MCM) for measuring and displaying stable pressures and temperatures. The transfective LCD screen displays the elapsed time, the pitot velocity pressure (ΔP), the venturi sample flow pressure (ΔH) and the temperature of the selected thermocouple. The rotary switch monitors up to 6 different temperatures. The sample volume is displayed via the mechanical totalizer. The coarse and fine valves are used to control the sample flow rate and to adjust the vacuum during leak checks. The quick-connects provide convenient connections for the sample vacuum line and the pitot tubes.

The XC-53 isokinetic source sampler console allows the operator to monitor gas velocities, temperatures, pressures, sample flow rates and volumes for maintaining isokinetic sampling conditions. The Source Sampler system is easily adapted to test for a wide range of pollutants from stationary sources, such as particulate matter including PM 2.5 and PM10 fractions, metals, polychlorinated biphenyls (PCBs), dioxins/ furans, polycyclic aromatic hydrocarbons (PAHs) and many more pollutants with adaptations of this basic isokinetic test method.

The Peak 32 microcontroller module utilizes a backlit, sunlight readable screen, an easy-to-use 4-button keypad, and sensors for measuring temperatures and pressures. The Peak 32 MCM also allows for user-adjustable damping for stable display of the ΔP and ΔH values. An internal USB interface is used for sensor calibration and firmware updates.

Recommended Method 17 Sampling Kit Components

- SFA-2590 In-stack Filter Assembly (3 Units for 3 runs)
- Glass Fiber Thimbles (10 Pack)
- Method 17 Probe Sheath with Tube Heater and Liner with Quick Connect
- Heated Sample Line insulated with PFA Liner
- 30' Split Umbilical Cable
- Power Box Adapter UA3J
- SB-6 Impinger Case includes Strain Reliefs for Sample Line and Umbilical Cable
- Stainless Steel Nozzle Set
- Glass Impinger Set

US EPA Method 17 - Determination of Particulate Matter Emissions From Stationary Sources

Method 17 is a modification of Method 5 and is applicable for the determination of PM emissions using an In-Stack filter assembly, where PM concentrations are known to be independent of temperatures that might occur in the stack. This method is not applicable to stacks that contain liquid droplets or are saturated with water vapor. In addition, this method should not be used if the projected cross-sectional area of the probe extension-filter holder assembly covers more than 5 percent of the stack cross-sectional area. Method 17 is popular for engineering studies for PM measurements prior to pollution control equipment. Normally three samples or runs are conducted per test and the average is used for reporting the emissions rate.



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