

MILLENNIUM INSTRUMENTS INC.

YOUR ENVIRONMENTAL EQUIPMENT SUPPLIER FOR THE 21ST CENTURY



BUYERS GUIDE

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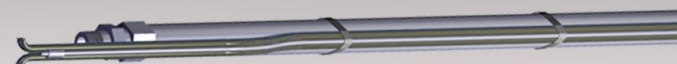
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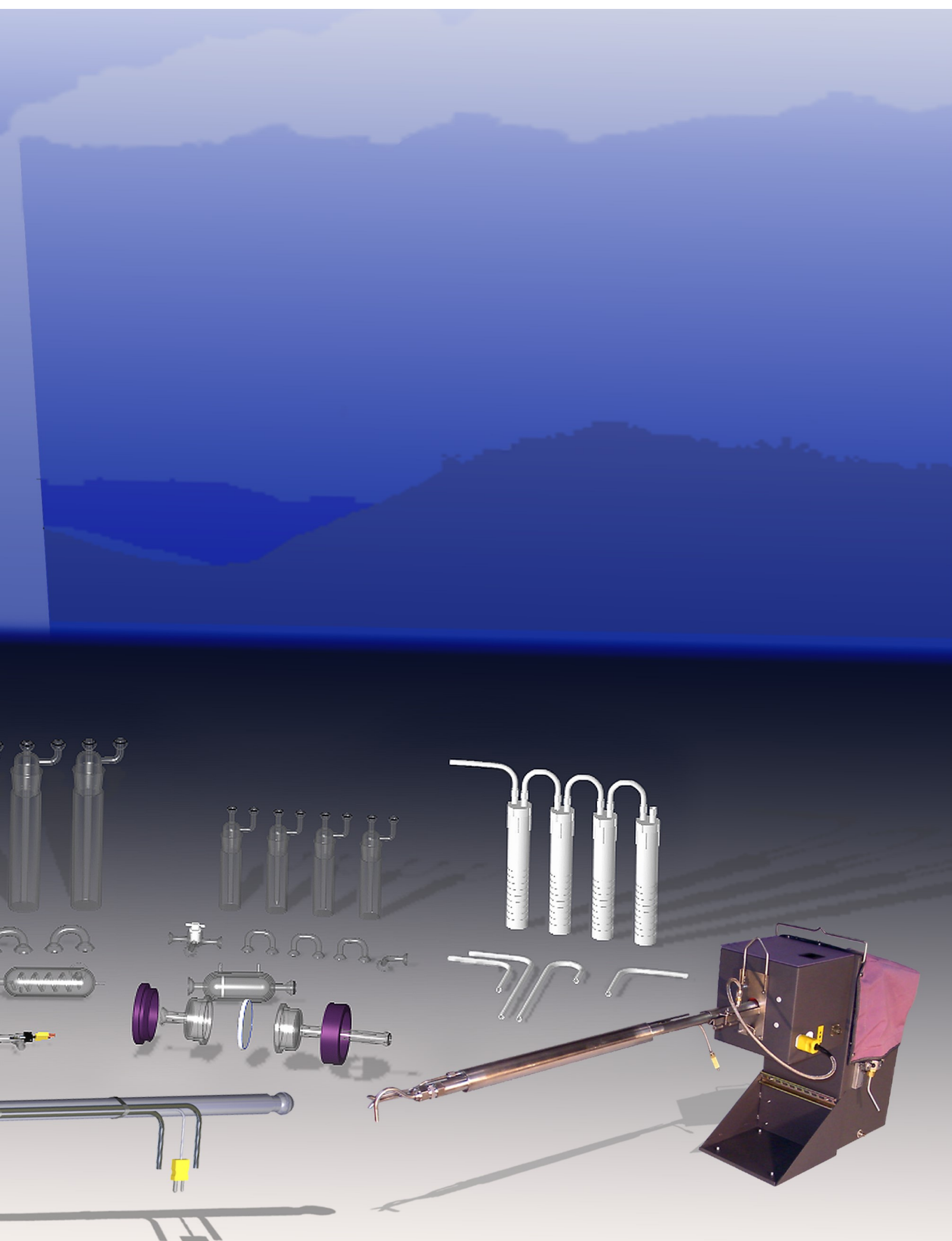
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Section 1

EPA Wet Methods 2 - 29





Method 2 **Flow / Temperature Measuring Equipment**

Determination of Stack Gas Velocity and Volumetric Flow Rate (S-Type Pitot Tube)

This Method is applicable for measurement of the average velocity of a gas stream and for quantifying gas flow.

Item# 2150

M2 System

➤ 10" Incline Manometer W/Case / STD Pitot	<i>Item# 400-10-K</i>
➤ 10' Pitot Assembly	<i>Item# 0469-10</i>
➤ Temperature Indicator	<i>Item# 0450-P</i>
➤ 25' Umbilical	<i>Item# 0640-25</i>

Item# 2150-TS

M2 Travel System

➤ 10' Jointed 3/8 Pitot W/Titanium Tip	<i>Item# 0468</i>
➤ 4',6',8',10' Type "K" T/C	<i>Item# 0450SM-SET</i>
➤ Digital Flow Sensor / Temperature Indicator	<i>Item# 130-DT</i>
➤ 25' Umbilical	<i>Item# 0640-25</i>
➤ Travel Case	<i>Item# 2150-TSC</i>



Air Velocity Kit's

Manometer • S.S. Standard Pitot • Two 10' Pieces of Tubing • Air Velocity Calculator

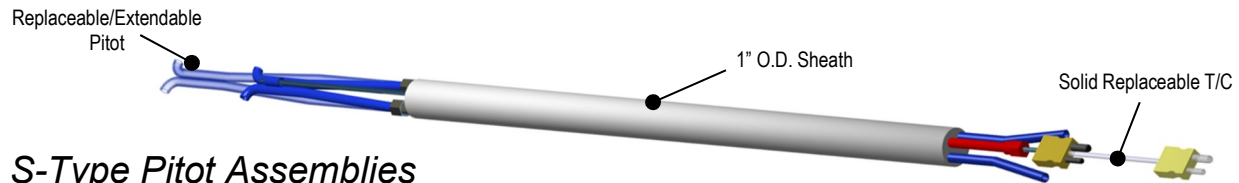
➤ Kit Including 0-10" w.c. Manometer (18" pitot tube)	<i>Item# 400-10-K</i>
➤ Kit Including .05-0-.25" w.c. Manometer (12" pitot tube)	<i>Item# 115-AV</i>
➤ Kit Including 0-1.0" w.c. Manometer (24" pitot tube)	<i>Item# 125-AV</i>

Standard Pitot Tube

S.S. Construction • 5/16" O.D.



➤ 8" Standard Pitot	Item# 0463-8
➤ 8" Standard Pitot w/TC	Item# 0463-8TC
➤ 12" Standard Pitot	Item# 0463-12
➤ 12" Standard Pitot w/TC	Item# 0463-12TC
➤ 18" Standard Pitot	Item# 0463-18
➤ 18" Standard Pitot w/TC	Item# 0463-18TC
➤ 24" Standard Pitot	Item# 0463-24
➤ 24" Standard Pitot w/TC	Item# 0463-24TC
➤ 36" Standard Pitot	Item# 0463-36
➤ 36" Standard Pitot w/TC	Item# 0463-36TC
➤ 48" Standard Pitot	Item# 0463-48
➤ 48" Standard Pitot w/TC	Item# 0463-48TC
➤ 60" Standard Pitot	Item# 0463-60
➤ 60" Standard Pitot w/TC	Item# 0463-60TC



S-Type Pitot Assemblies

1" S.S. Jacket • 1/4" S-Type Pitot W/Geometric Calibration

• Type "K" Stack Thermocouple

➤ 2' Effective	Item#0460-2
➤ 3' Effective	Item# 0460-3
➤ 4' Effective	Item# 0460-4
➤ 5' Effective	Item# 0460-5
➤ 6' Effective	Item# 0460-6
➤ 7' Effective	Item# 0460-7
➤ 8' Effective	Item# 0460-8
➤ 9' Effective	Item# 0460-9
➤ 10' Effective	Item# 0460-10
➤ 11' Effective	Item# 0460-11
➤ 12' Effective	Item# 0460-12

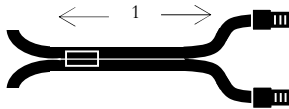
Item# 0468

3/8" S.S. Jointed Pitot / Titanium Tip

(System includes items listed below) plus 8 x 3/8" S.S.
Union

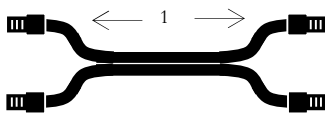
➤ Pitot Tip 1' Overall

Item# 0468-T



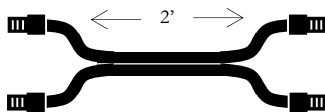
➤ 1' Overall Section

Item# 0468-1



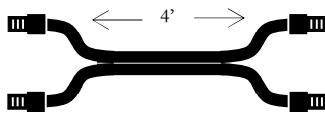
➤ 2' Overall Section

Item# 0468-2



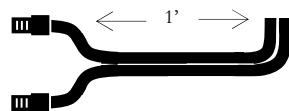
➤ 4' Overall Section Qty. 2

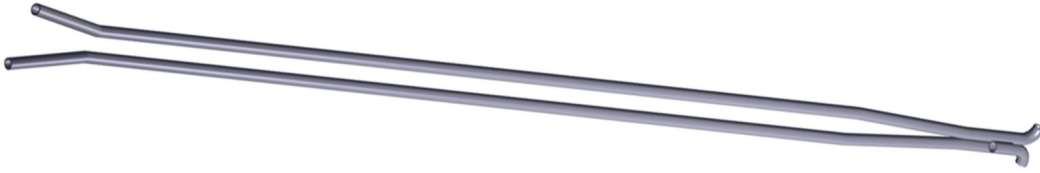
Item# 0468-4



➤ Pistol Grip 1' Overall

Item# 0468-P





Replacement S-Type Pitots

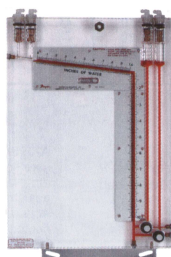
1/4" O.D. S.S. Tube Construction

➤ 6" Overall	Item# 0462-500
➤ 1' Overall	Item# 0462-1
➤ 2' Effective	Item# 0462-2
➤ 3' Effective	Item# 0462-3
➤ 4' Effective	Item# 0462-4
➤ 5' Effective	Item# 0462-5
➤ 6' Effective	Item# 0462-6
➤ 7' Effective	Item# 0462-7
➤ 8' Effective	Item# 0462-8
➤ 9' Effective	Item# 0462-9
➤ 10' Effective	Item# 0462-10
➤ 11' Effective	Item# 0462-11
➤ 12' Effective	Item# 0462-12
➤ 6" Overall	Item# 0462-500T
➤ 1' Overall	Item# 0462-1T

M-2 Traverse Umbilicals

2 Polyvinyl Pitot Lines • 2 Type "K" Extension Wires With
Standard Plugs • Flexi-Weave Nylon Cover

➤ 25' M-2 Umbilical cable	Item# 0640-25
➤ 50' M-2 Umbilical cable	Item# 0640-50
➤ 100' M-2 Umbilical cable	Item# 0640-100



Incline Manometers

➤ 10" Water Column (single column)	<i>Item# 7010</i>
➤ 8" Water Column (dual column)	<i>Item# 7000</i>
➤ 5" Water Column (single column)	<i>Item# 7010-5</i>
➤ 1" Water Column (single column)	<i>Item# 7010-1</i>
➤ .25" Water Column (single column)	<i>Item# 7010-.25</i>



U-Tube Manometers

➤ 8" Water Column	<i>Item# 0642-8</i>
➤ 12" Water Column	<i>Item# 0642-12</i>
➤ 16" Water Column	<i>Item# 0642-16</i>
➤ 20" Water Column	<i>Item# 0642-20</i>
➤ 24" Water Column	<i>Item# 0642-24</i>
➤ 36" Water Column	<i>Item# 0642-36</i>



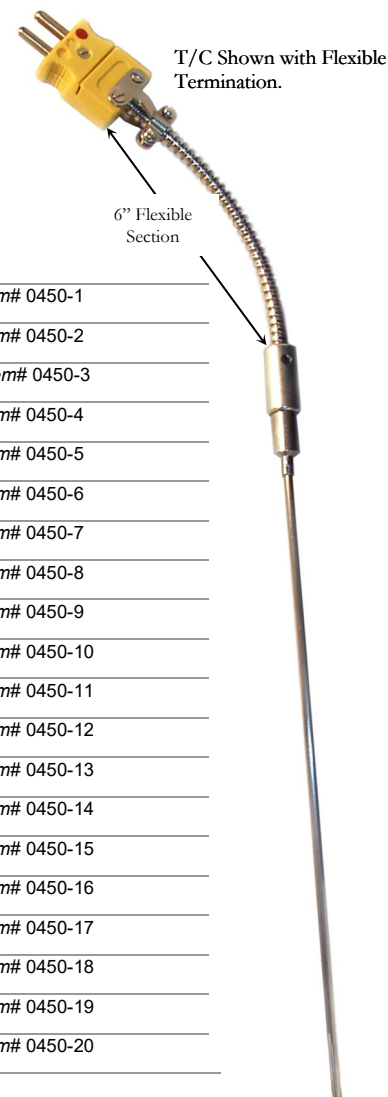
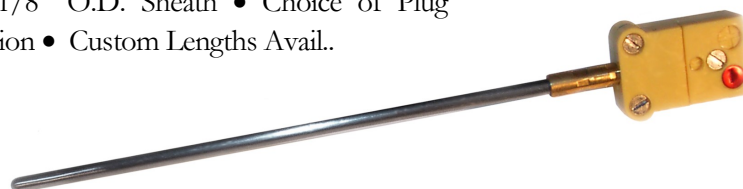
➤ Temperature Indicator	<i>Item# 0450-P</i>
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Thermocouples And Accessories

Thermocouples

1/8" O.D. Type K Plugs attached

316 S.S. 1/8" O.D. Sheath • Choice of Plug configuration • Custom Lengths Avail..

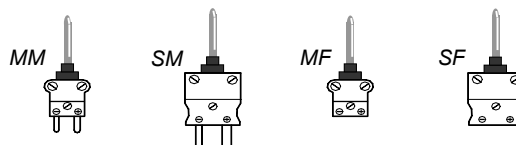


➤ 1' Thermocouple *	Item# 0450-1
➤ 2' Thermocouple *	Item# 0450-2
➤ 3' Thermocouple *	Item# 0450-3
➤ 4' Thermocouple *	Item# 0450-4
➤ 5' Thermocouple *	Item# 0450-5
➤ 6' Thermocouple *	Item# 0450-6
➤ 7' Thermocouple *	Item# 0450-7
➤ 8' Thermocouple *	Item# 0450-8
➤ 9' Thermocouple *	Item# 0450-9
➤ 10' Thermocouple *	Item# 0450-10
➤ 11' Thermocouple *	Item# 0450-11
➤ 12' Thermocouple *	Item# 0450-12
➤ 13' Thermocouple *	Item# 0450-13
➤ 14' Thermocouple *	Item# 0450-14
➤ 15' Thermocouple *	Item# 0450-15
➤ 16' Thermocouple *	Item# 0450-16
➤ 17' Thermocouple *	Item# 0450-17
➤ 18' Thermocouple *	Item# 0450-18
➤ 19' Thermocouple *	Item# 0450-19
➤ 20' Thermocouple *	Item# 0450-20

Note: Add appropriate letter to part number for plug choice 0450-06MM (6" Thermocouple with [mini male](#) plug)

When ordering T/C with flexible termination add "-FT" as the last digits of the part number. (also add \$15.30 to the list price for this option)

*Note: Add 3" to length to obtain actual overall length.

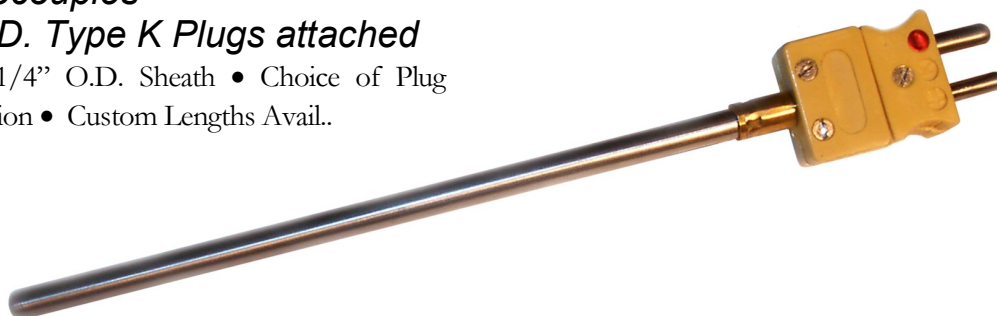


(Standard Plugs Available)

Thermocouples

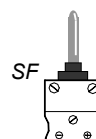
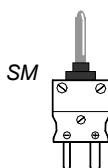
1/4" O.D. Type K Plugs attached

316 S.S. 1/4" O.D. Sheath • Choice of Plug configuration • Custom Lengths Avail..



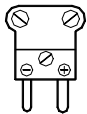
➤ 4" Thermocouple	Item# 0454-04
➤ 6" Thermocouple	Item# 0454-06
➤ 1' Thermocouple	Item# 0454-1
➤ 2' Thermocouple	Item# 0454-2
➤ 3' Thermocouple	Item# 0454-3
➤ 4' Thermocouple	Item# 0454-4
➤ 5' Thermocouple	Item# 0454-5
➤ 6' Thermocouple	Item# 0454-6
➤ 7' Thermocouple	Item# 0454-7
➤ 8' Thermocouple	Item# 0454-8
➤ 9' Thermocouple	Item# 0454-9
➤ 10' Thermocouple	Item# 0454-10
➤ 11' Thermocouple	Item# 0454-11
➤ 12' Thermocouple	Item# 0454-12
➤ 13' Thermocouple	Item# 0454-13
➤ 14' Thermocouple	Item# 0454-14
➤ 15' Thermocouple	Item# 0454-15
➤ 16' Thermocouple	Item# 0454-16
➤ 17' Thermocouple	Item# 0454-17
➤ 18' Thermocouple	Item# 0454-18
➤ 19' Thermocouple	Item# 0454-19
➤ 20' Thermocouple	Item# 0454-20

Note: Add appropriate letter to part number for plug choice 0450-06SM (6" Thermocouple with [Standard male](#) plug)

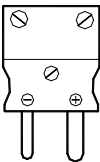


Thermocouple Plugs

0451MM



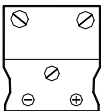
0451M



0451MF



0451F



➤ Mini Male Plug	Item#0451MM
➤ STD. Male Plug	Item#0451M
➤ Mini Female Plug	Item# 0451MF
➤ STD. Female Plug	Item# 0451F



Thermocouple Wire

➤ Type "K" TFE Coated T/C Wire (solid)	Item# 0450TFE
➤ Type "K" Glass Braid T/C Wire (stranded)	Item# 0450GLS
➤ Type "K" PVC Coated T/C Extension Wire (stranded)	Item# 0450EXT

Method 3

Gas Sampling Equipment

Gas Analysis for the Determination of Dry Molecular Weight

This Method is applicable for determining carbon monoxide (co), carbon dioxide (co₂), and oxygen (o₂) concentrations and dry molecular weight of a sample from a gas stream of a fossil-fuel combustion process.



The Industro Model B comes equipped with 1 bottle each of, Burette Solution, Oxsorbent Solution, Disorbent Solution, and Cosorbent Solution.

Additional replacement solutions are listed on the following page.

Item# 407030000

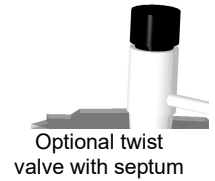
Industro Model B

Industro Model B Replacement Items

➤ Burette 0-21%	Item# 0970120000
➤ Burette 0-30%	Item# 0970250000
➤ Contact Pipette	Item# 0970130000
➤ Bubbler Pipette	Item# 0970240100
➤ Level Tube W / Clip	Item# 0970210000
➤ Rubber Stopper W / Bent Tube	Item# 0404680000
➤ Gas Expansion Bag (6 pc. Pkg.)	Item# 0404700000
➤ Manifold Rear Section	Item# 0940430000
➤ Sampler Valve Assembly	Item# 2800010000
➤ Valve Seat (5 pc. Pkg.)	Item# 2810020005

Tedlar Gas Sample bags

2mil Tedlar • Halkey Roberts Hose Barb •
Available In Clear Or Black Tedlar (add letter
B to part number for black Tedlar)



Size	Liters	
➤ 6" x 6"	.6	Item# 2250-6
➤ 7" x 7"	1.0	Item# 2250-1
➤ 9" x 9"	2.0	Item# 2250-2
➤ 12" x 12"	5.0	Item# 2250-5
➤ 12" x 18"	10.0	Item# 2250-10
➤ 18" x 18"	16.0	Item# 2250-16
➤ 18" x 24"	25.0	Item# 2250-25
➤ 24" x 24"	40.0	Item# 2250-40
➤ 24" x 30"	50.0	Item# 2250-50
➤ 24" x 36"	75.0	Item# 2250-75
➤ 30" x 30"	80.0	Item# 2250-80
➤ 30" x 36"	100.0	Item# 2250-100
➤ 36" x 36"	125.0	Item# 2250-125
➤ 36" x 48"	200.0	Item# 2250-200
➤ 48" x 48"	250.0	Item# 2250-250

Orsat Chemicals



➤ Co-Sorb Solution, 3 oz	Item# 39721-03
➤ Co-Sorb Solution, 8 oz	Item# 39720-08
➤ Ox-Sorb Solution, 3 oz	Item# 39710-03
➤ Ox-Sorb Solution, 8 oz	Item# 39710-08
➤ Di-Sorb Solution, 3 oz	Item# 39730-03
➤ Di-Sorb Solution, 16 oz	Item# 39730-16
➤ Burette Solution, 3 oz	Item# 39801-03
➤ Burette Solution, 16 oz	Item# 39800-16



Item# 0122

Sample Pump With Flowmeter

Aluminum Enclosure • Teflon Diaphragm Sample
Pump • 0-5 LPM Valved Flowmeter • 1/4" S.S.
Inlet/Outlet Fittings • On/Off Switch

Testo 300 M Gas Analyzer and Options



Item# 3001

Testo 300 M Basic Kit

(Kit includes items listed below)

➤ Combustion Analyzer O ₂ , CO ₂ , CO	<i>Item# 632.0300</i>
➤ Battery Charger	<i>Item# 554.0053</i>
➤ Compact Flue Gas Probe	<i>Item# 600.9532</i>
➤ Aluminum Case (Instrument)	<i>Item# 516.0306</i>
➤ Transport Case (Kit)	<i>Item# 516.0302</i>
➤ Spare Inline Filters (10 Pack)	<i>Item# 554.3371</i>

Testo 300 M Optional Items

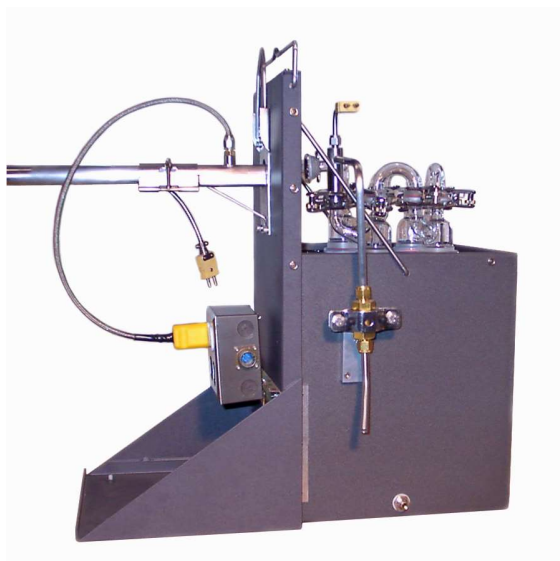
➤ High Temperature Probe 12" long, 1832 °F Max	<i>Item# 600.8532</i>
➤ Infrared Printer	<i>Item# 554.0545</i>

Method 4

Moisture Determination Equipment

Determination of Moisture Content in Stack Gases

This method is applicable for determining the moisture content of stack gas.

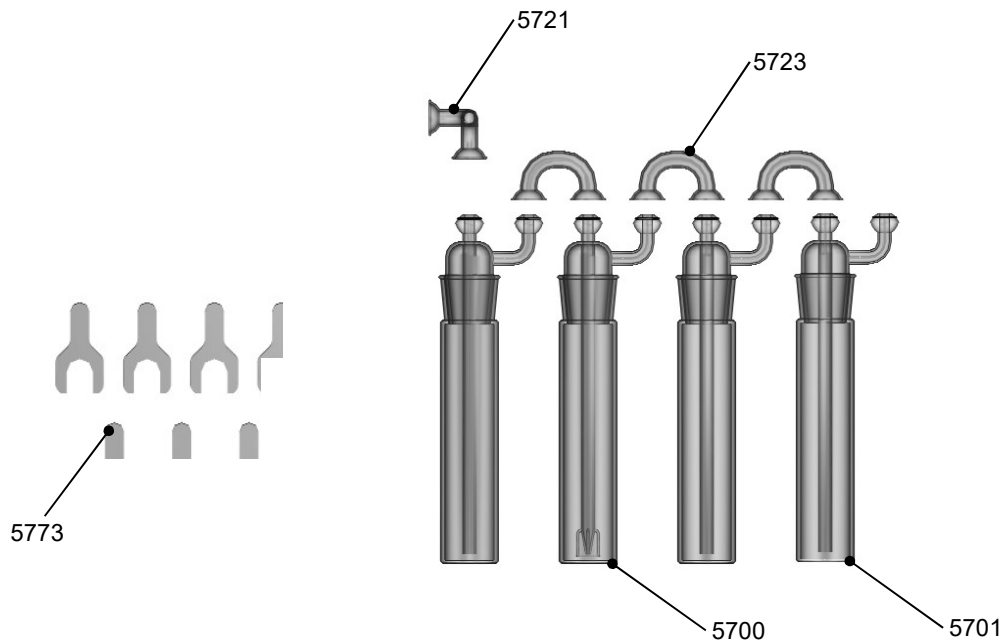


Item# 2100-4

Mill 4 Sampling System

(System includes items listed below)

➤ Mill 5 Control Console (no pump)	Item# 120-C
➤ Mill 5 Sample Console Configured For M-4	Item# 0310-4
➤ 6' S.S. Heated Gas Sampling Probe (28-12 Ball Joint Stainless Steel liner)	Item# 0416-6SS
➤ 25' Umbilical Cable	Item# 0634-25
➤ Impinger Outlet	Item# 0610
➤ Mill 4 Glassware System	Item# 5504
➤ Umbilical Junction Box (4-pin adapter)	Item# 0630
➤ Sample Pump W/Flowmeter	Item# 0121-P



Heavy Wall Construction • Ground Glass Single O-ring Joints

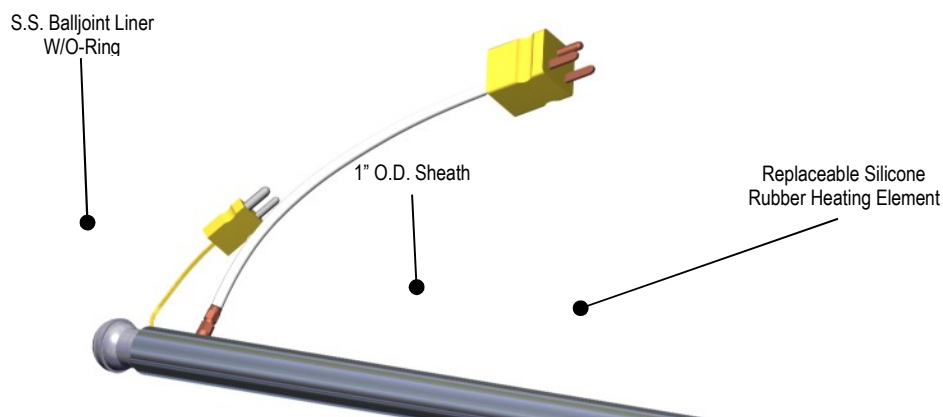
Item# 5504

Mill 4 Glassware System

Heavy Wall Construction • Ground
Glass Single O-ring Joints

(Set Includes Items Listed Below)

➤ Greenburg Smith Impinger Assembly	Qty. 1	Item# 5700
➤ Modified Impinger Assembly	Qty. 3	Item# 5701
➤ 180 Degree Bend	Qty. 3	Item# 5723
➤ Double "L" Adapter	Qty. 1	Item# 5721
➤ #28 S.S. Pinchclamp	Qty. 9	Item# 5773



M-4 Probes and Replacement Liners

1" O.D. S.S. Construction • 120 V Heating Element •
 Type "K" Probe t/c • #28 Balljoint W/O-ring S.S. $\frac{3}{8}$ "
 O.D. Liner with $\frac{5}{8}$ " Cup

➤ 6' Effective M-4 S.S. Heated Probe	Item# 0416-6SS
➤ 6' Effective M-4 Glass Replacement Liner	Item# 0434-6
➤ 6' Effective M-4 S.S. Replacement Liner	Item# 0434-6SS



Item# 9587

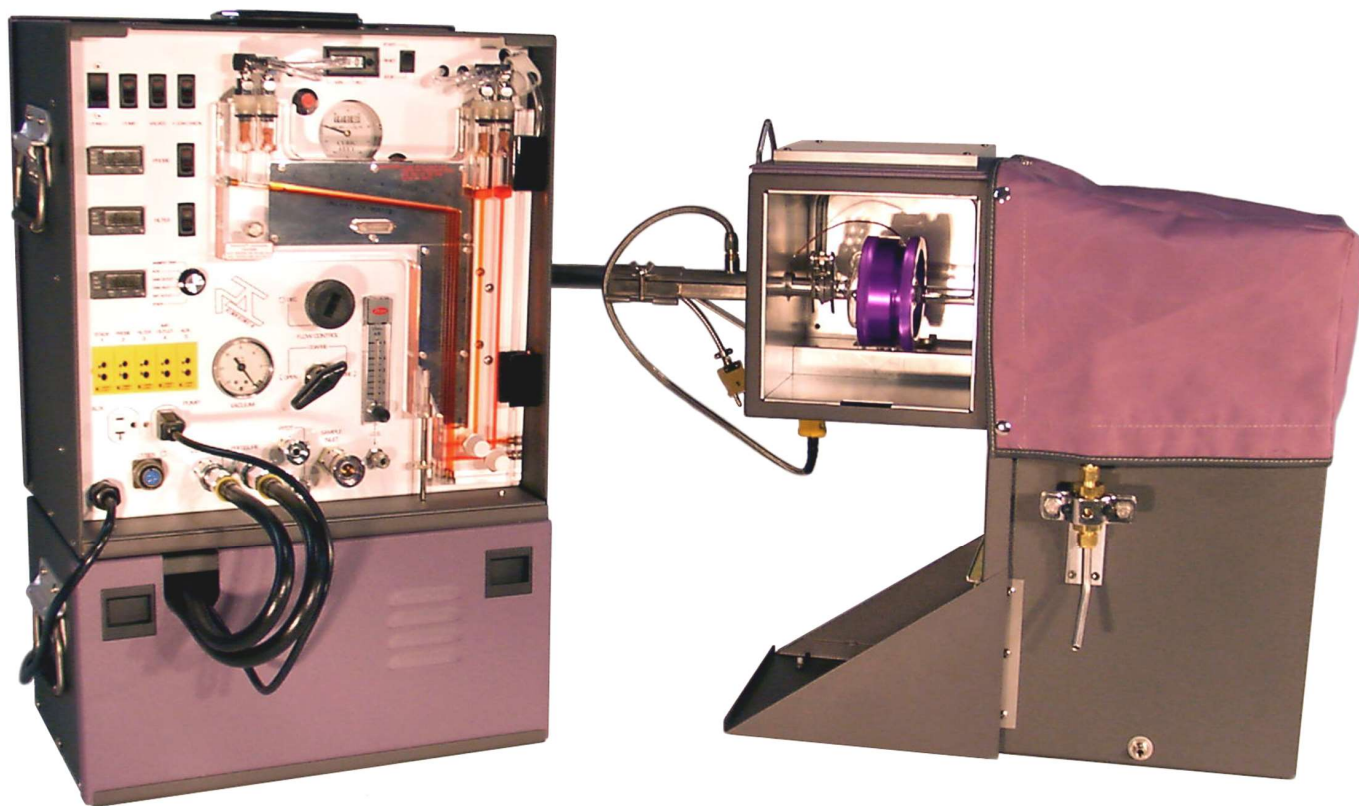
Glass Wool

Method 5

Isokinetic Sampling Equipment

This method is applicable for the determination of particulate emissions from stationary sources.

Particulate matter is withdrawn isokinetically from the source and collected on a glass fiber filter maintained at a temperature in the range of $120\pm14^{\circ}\text{C}$ ($248\pm25^{\circ}\text{F}$) or such other temperature as specified by an applicable subpart of the standards or approved by Administrator, U.S. Environmental Protection Agency, for a particular application. The particulate mass, which includes any material that condenses at or above the filtration temperature, is determined gravimetrically after removal or uncombined water.



*Millennium M-5 Sampling System**Item# 2100-S*

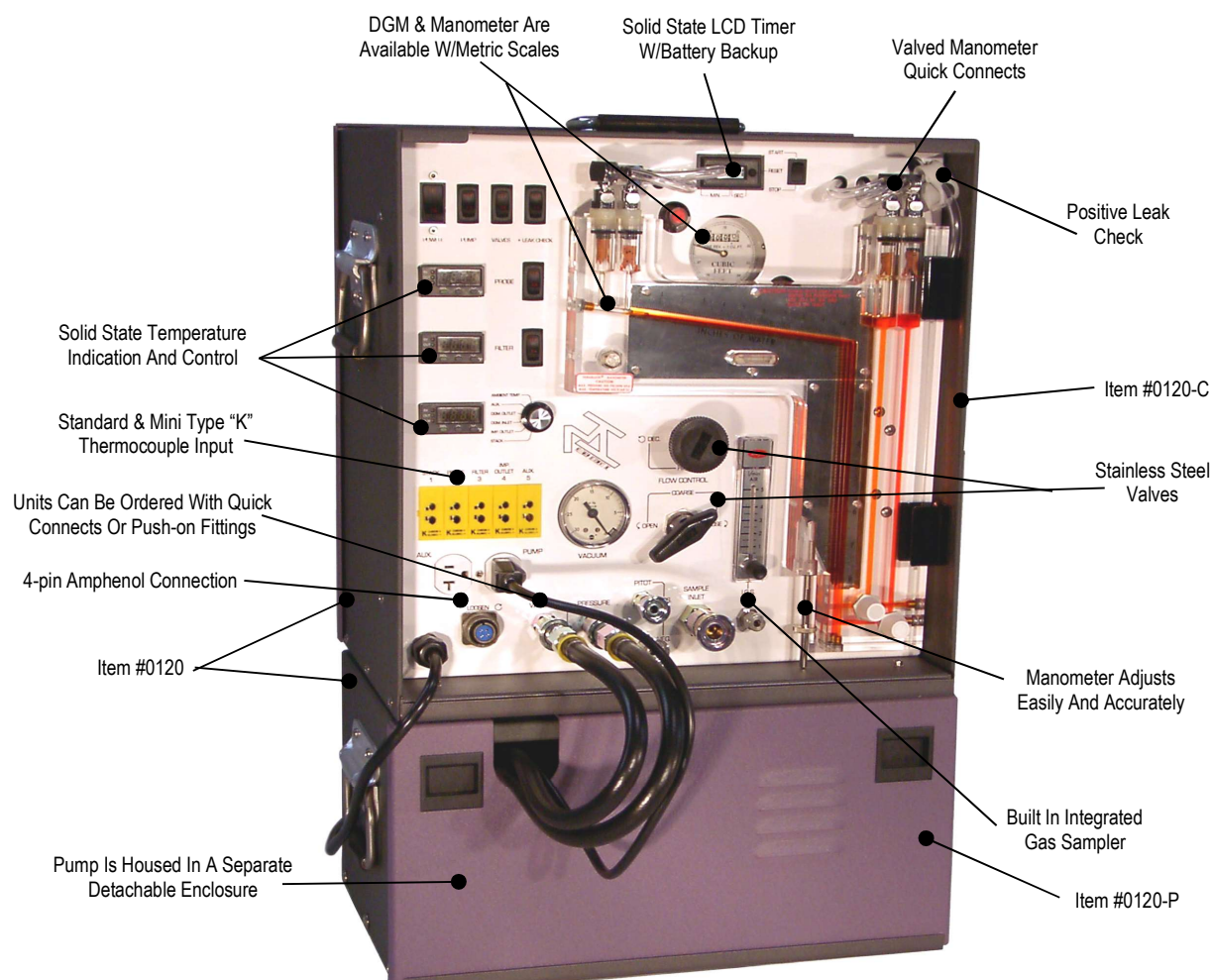
➤ Mill 5 Control Console	<i>Item# 0120</i>
➤ Mill 5 Sample Console	<i>Item# 0300</i>
➤ 6' S.S. M-5 Probe (28-12 Ball Joint Stainless Steel liner)	<i>Item# 0400-6</i>
➤ 50' Umbilical Cable	<i>Item# 0650-50</i>
➤ S.S. Nozzle Set	<i>Item# 0400-S</i>
➤ Impinger Outlet	<i>Item# 0610</i>
➤ Millennium M-5 Glassware System	<i>Item# 5502S</i>
➤ S.S. Port Seal Adapter	<i>Item# 8550</i>
➤ 85mm Glass Fiber Filters (box of 100)	<i>Item# 1034</i>
➤ 10' Probe Rod Kit	<i>Item# 0482-10</i>
➤ Nozzle Brush Set	<i>Item# 0400-B</i>
➤ Mill 5 Control Console Shipping Case	<i>Item# 0120-SC</i>
➤ Critical Orifice Set S.S.	<i>Item#0605-S</i>

*Mill 5 Sampling System**Item# 2100*

➤ Mill 5 Control Console	<i>Item# 0120</i>
➤ Mill 5 Sample Console	<i>Item# 0300</i>
➤ 6' S.S. M-5 Probe (28-12 Ball Joint Stainless Steel liner)	<i>Item# 0400-6</i>
➤ 50' Umbilical Cable	<i>Item# 0650-50</i>
➤ S.S. Nozzle Set	<i>Item# 0400-S</i>
➤ Impinger Outlet	<i>Item# 0610</i>
➤ Mill 5 Glassware System	<i>Item# 5501S</i>
➤ 85mm Glass Fiber Filters (box of 100)	<i>Item# 1034</i>
➤ 10' Probe Rod Kit	<i>Item# 0482-10</i>
➤ S.S. Port Seal Adapter	<i>Item# 8550</i>
➤ Nozzle Brush Set	<i>Item# 0400-B</i>

Mill 5 Control Console

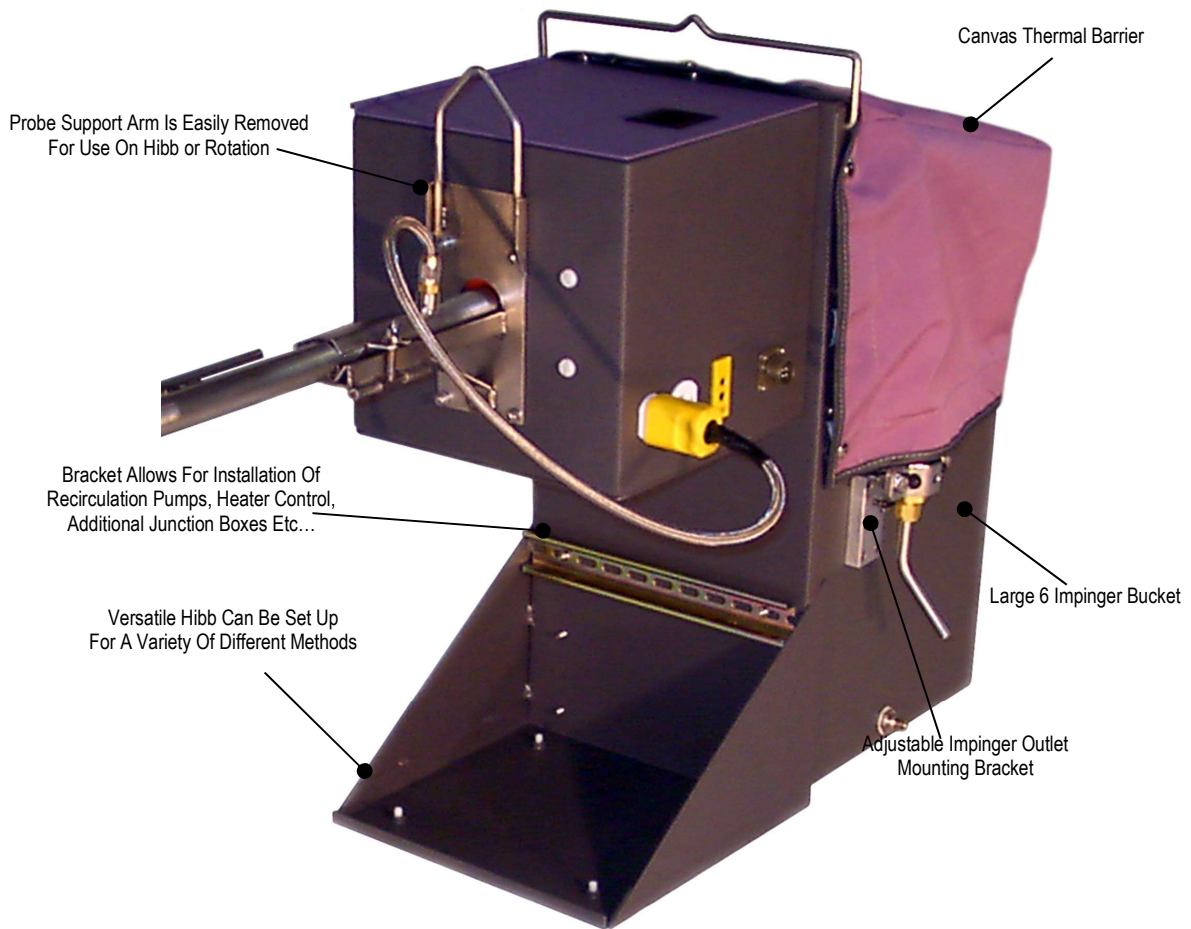
➤ Mill 5 Control Console 110V	Item# 0120
➤ Mill 5 Control Console (no pump)	Item# 0120-C
➤ Mill 5 Vacuum Pump	Item# 0120-P
➤ Mill 5 Control Console 220V	Item# 0120-220
➤ Mill 5 Control Console Metric	Item# 0120-M



The Millennium Instruments Mill-5 control console is a versatile user-friendly instrument designed for the performance of US EPA reference method testing. The control console when properly outfitted will perform methods 4, 5, 6, 8, 8A, 5l, 17, 23, 29, or any method requiring an isokinetic sample rate. The construction incorporates easy to read analog/digital gauges. Solid-state circuitry is used in all electronic components. The chassis is split into two sections, the control console and the pump housing, which can be easily joined, or separated for shipping/handling. The Mill-5 has been designed to be compatible with most brands of testing equipment.

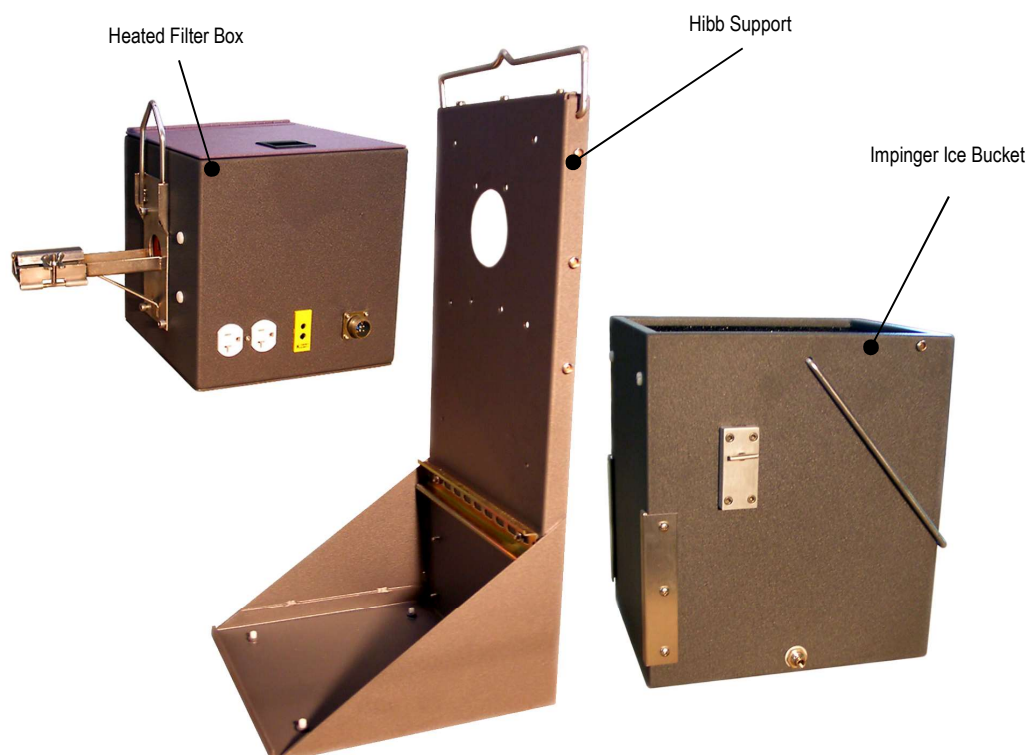
Mill 5 Sample Console

Item# 0300

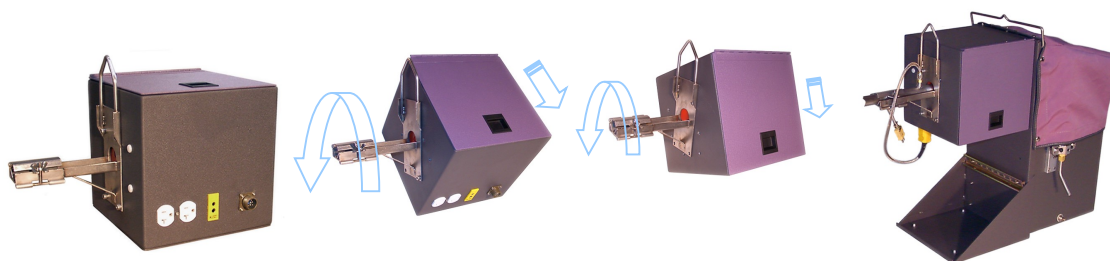


The Mill 5 Sample Console consists of a heated filter unit, an ice bucket, and the “hibb” to connect to the two units together. The heated filter unit comes complete with a probe arm support, probe heater receptacle, auxiliary power receptacle, and standard umbilical connector. The max continuous temperature is 300° F and is maintained by the Mill-5 control console via an umbilical. The ice bucket is thermally insulated and comes with a bracket to support the impinger outlet. The “hibb” is used to support and connect the heated filter unit to the ice bucket. The bottom plate of the “hibb” is used to support miscellaneous items such as re-circulation pumps, sample pumps, heated sample line controllers, and many other ancillary testing items. The heated filter box has been designed to be compatible with most brands of testing equipment.

Mill 5 Sample Console Configured For M-5

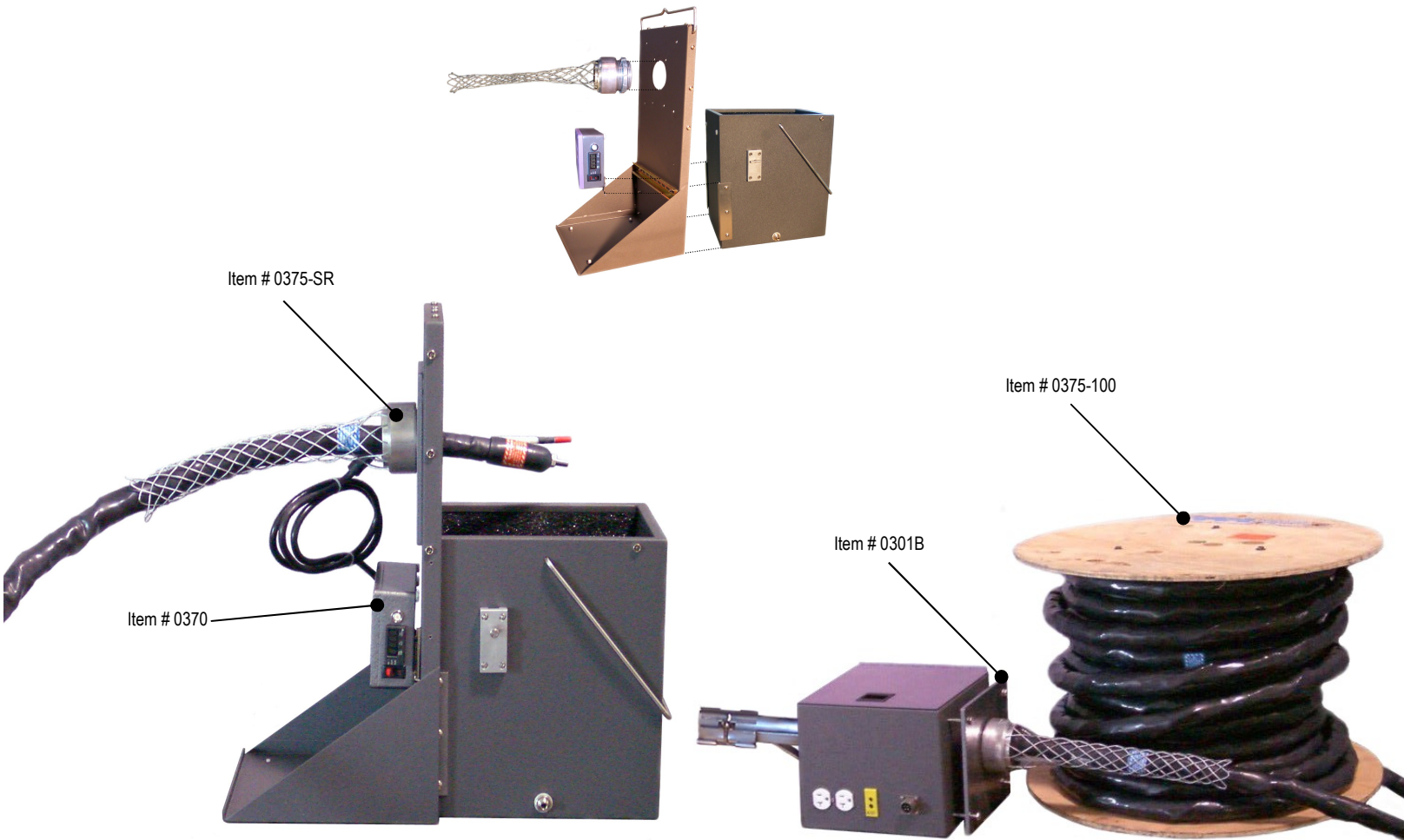


The Probe Support Arm can be conveniently removed and rotated providing top or side access to the heated area.



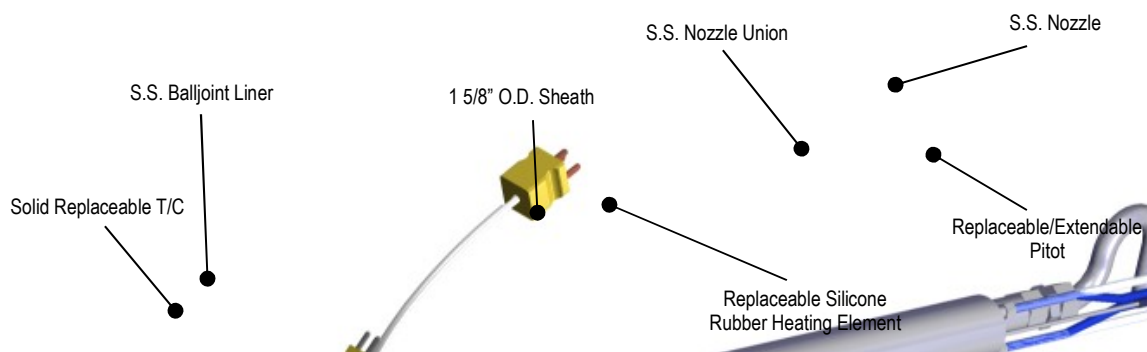
➤ Heated Filter Box	Item# 0301
➤ Hibb Support Bracket	Item# 0310
➤ 6 Impinger Ice Bucket	Item# 0311
➤ Canvas Cover	Item# 0312

Heated Filter System Shown W / Heated Umbilical



➤ 100' OAL Length Heated Sample Line	Item# 0375-100
➤ Strain Relief Mounting Plate (including hardware)	Item# 0301-B
➤ Strain Relief 1.62" – 2.00" Line Dia.	Item# 0375-SR

M-5 Probes and Associated Items



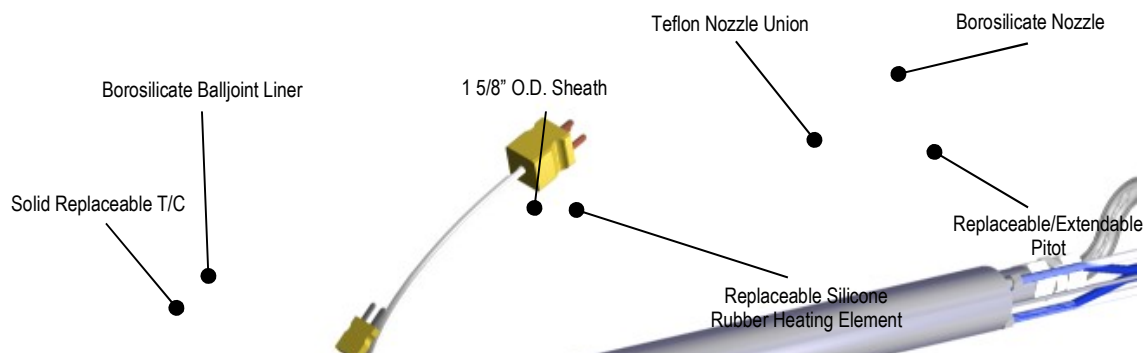
S.S. Construction • 120 V Silicone Heating Element • 316 S.S. Probe Liner w/#28 Balljoint • S.S. 5/8" Nozzle Union • Type "K" Probe & Stack Thermocouple • Calibrated "S" Type Pitot

Complete M-5 Probes With S.S. Liners

➤ 2' S.S. M-5 Probe	Item# 0410-2
➤ 3' S.S. M-5 Probe	Item# 0410-3
➤ 4' S.S. M-5 Probe	Item# 0410-4
➤ 5' S.S. M-5 Probe	Item# 0410-5
➤ 6' S.S. M-5 Probe	Item# 0410-6
➤ 7' S.S. M-5 Probe	Item# 0410-7
➤ 8' S.S. M-5 Probe	Item# 0410-8
➤ 9' S.S. M-5 Probe	Item# 0410-9
➤ 10' S.S. M-5 Probe	Item# 0410-10
➤ 11' S.S. M-5 Probe	Item# 0410-11
➤ 12' S.S. M-5 Probe	Item# 0410-12

Standard lengths available up to 20' call representative for pricing and availability

Note: Add a "-220" to the part number for the 220 V/AC silicone heater option (2' method 5 probe with 220 V/AC heater = part number 0410-2-220)

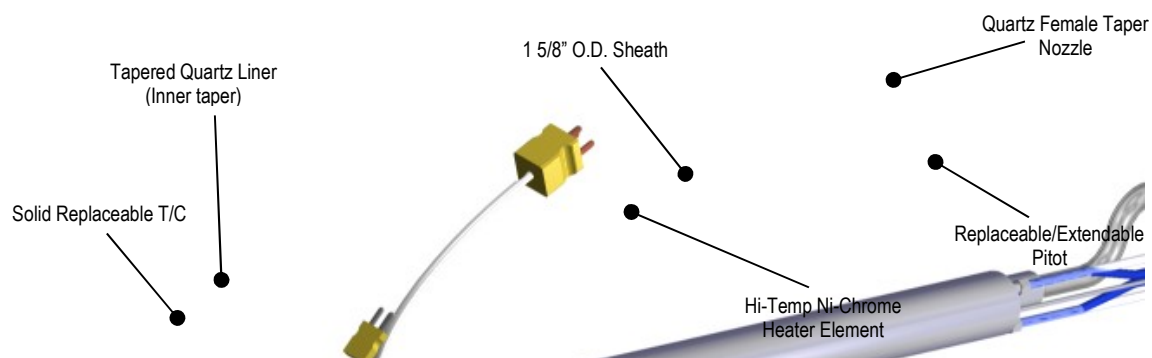


S.S. Construction • 120 V Silicone Heating Element • Calibrated “S” Type Pitot •
 Borosilicate Probe Liner w/#28 Balljoint • 5/8” Teflon Nozzle Union • Type “K”
 Probe & Stack Thermocouple

Complete M-5 Probes With Borosilicate Liners

➤ 2' Borosilicate M-5 Probe	Item# 0412-2
➤ 3' Borosilicate M-5 Probe	Item# 0412-3
➤ 4' Borosilicate M-5 Probe	Item# 0412-4
➤ 5' Borosilicate M-5 Probe	Item# 0412-5
➤ 6' Borosilicate M-5 Probe	Item# 0412-6
➤ 7' Borosilicate M-5 Probe	Item# 0412-7
➤ 8' Borosilicate M-5 Probe	Item# 0412-8
➤ 9' Borosilicate M-5 Probe	Item# 0412-9
➤ 10' Borosilicate M-5 Probe	Item# 0412-10
➤ 11' Borosilicate M-5 Probe	Item# 0412-11
➤ 12' Borosilicate M-5 Probe	Item# 0412-12

Note: Add a “-220” to the part number for the 220 V/AC silicone heater option (2' method 5 probe with 220 V/AC heater = part number 0412-2-220)

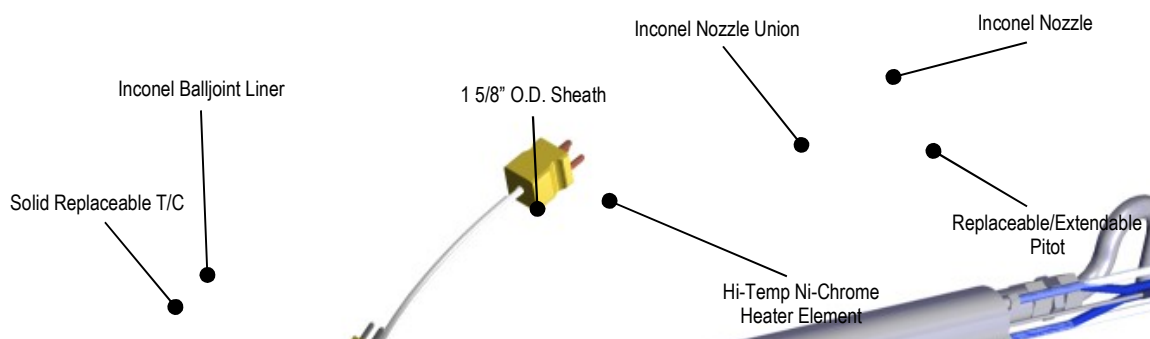


S.S. Construction • 120 V Tube Heating Element • Calibrated “S” Type Pitot • Tapered Quartz Probe Liner w/28 Balljoint and 14/35 Inner Joint • Type “K” Probe & Stack Thermocouple

Complete M-5 Probes With Tapered Quartz Liners

➤ 2' Quartz M-5 Probe	Item# 0414-2
➤ 3' Quartz M-5 Probe	Item# 0414-3
➤ 4' Quartz M-5 Probe	Item# 0414-4
➤ 5' Quartz M-5 Probe	Item# 0414-5
➤ 6' Quartz M-5 Probe	Item# 0414-6
➤ 7' Quartz M-5 Probe	Item# 0414-7
➤ 8' Quartz M-5 Probe	Item# 0414-8
➤ 9' Quartz M-5 Probe	Item# 0414-9
➤ 10' Quartz M-5 Probe	Item# 0414-10
➤ 11' Quartz M-5 Probe	Item# 0414-11
➤ 12' Quartz M-5 Probe	Item# 0414-12

Note: Add a “-220” to the part for the 220 V/AC tube heater option (2' method 5 probe with 220 V/AC heater = part number 0414-2-220)



S.S. Construction • 120 V Tube Heating Element • Calibrated “S” Type Pitot • Inconel Probe Liner w/#28 Balljoint • 5/8” Inconel Nozzle Union • Type “K” Probe & Stack Thermocouple

Complete M-5 Probes With Inconel Liners

➤ 2' Inconel M-5 Probe	Item# 0411-2
➤ 3' Inconel M-5 Probe	Item# 0411-3
➤ 4' Inconel M-5 Probe	Item# 0411-4
➤ 5' Inconel M-5 Probe	Item# 0411-5
➤ 6' Inconel M-5 Probe	Item# 0411-6
➤ 7' Inconel M-5 Probe	Item# 0411-7
➤ 8' Inconel M-5 Probe	Item# 0411-8
➤ 9' Inconel M-5 Probe	Item# 0411-9
➤ 10' Inconel M-5 Probe	Item# 0411-10
➤ 11' Inconel M-5 Probe	Item# 0411-11
➤ 12' Inconel M-5 Probe	Item# 0411-12

Standard lengths available up to 20' call representative for pricing and availability

Note: Add a “-220” to the part for the 220 V/AC tube heater option (2' method 5 probe with 220 V/AC heater = part number 0411-2-220)

316 S.S. 5/8" O.D. • 28/12 Ball Joint w/O-ring

S.S. Probe Liners



➤ 2' Effective SS Liner	Item# 0430-2
➤ 3' Effective SS Liner	Item# 0430-3
➤ 4' Effective SS Liner	Item# 0430-4
➤ 5' Effective SS Liner	Item# 0430-5
➤ 6' Effective SS Liner	Item# 0430-6
➤ 7' Effective SS Liner	Item# 0430-7
➤ 8' Effective SS Liner	Item# 0430-8
➤ 9' Effective SS Liner	Item# 0430-9
➤ 10' Effective SS Liner	Item# 0430-10
➤ 11' Effective SS Liner	Item# 0430-11
➤ 12' Effective SS Liner	Item# 0430-12

Overall length is 1' longer than effective length.

Borosilicate 5/8"

Borosilicate Glass Probe Liners

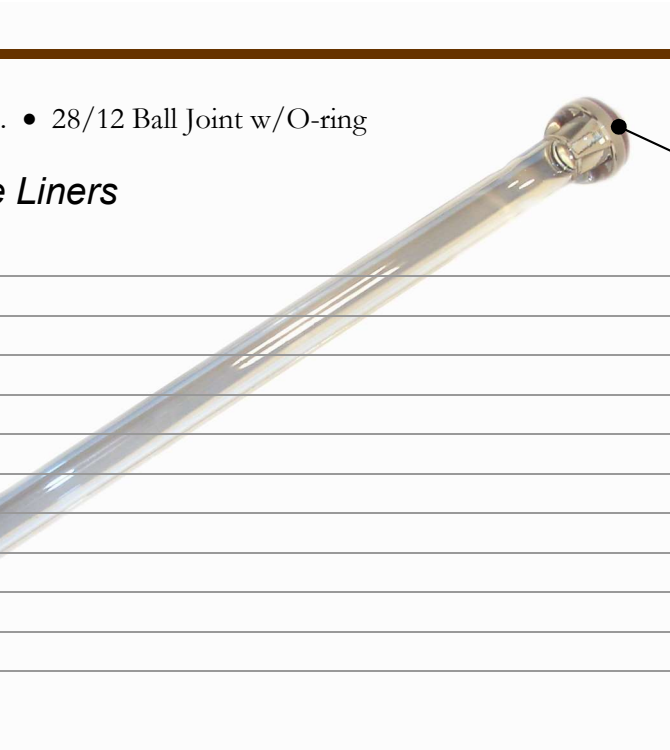


➤ 2' Effective length	Item# 0432-2
➤ 3' Effective length	Item# 0432-3
➤ 4' Effective length	Item# 0432-4
➤ 5' Effective length	Item# 0432-5
➤ 6' Effective length	Item# 0432-6
➤ 7' Effective length	Item# 0432-7
➤ 8' Effective length	Item# 0432-8
➤ 9' Effective length	Item# 0432-9
➤ 10' Effective length	Item# 0432-10
➤ 11' Effective length	Item# 0432-11
➤ 12' Effective length	Item# 0432-12

Overall length is 1' longer than effective length.

Quartz 5/8" O.D. • 28/12 Ball Joint w/O-ring

Quartz Probe Liners



➤ 2' Effective length	Item# 0433-2
➤ 3' Effective length	Item# 0433-3
➤ 4' Effective length	Item# 0433-4
➤ 5' Effective length	Item# 0433-5
➤ 6' Effective length	Item# 0433-6
➤ 7' Effective length	Item# 0433-7
➤ 8' Effective length	Item# 0433-8
➤ 9' Effective length	Item# 0433-9
➤ 10' Effective length	Item# 0433-10
➤ 11' Effective length	Item# 0433-11
➤ 12' Effective length	Item# 0433-12

Overall length is 1' longer than effective length.

Alloy 600 5/8" O.D. • 28/12 S.S. Ball Joint w/O-ring

Inconel Probe Liners



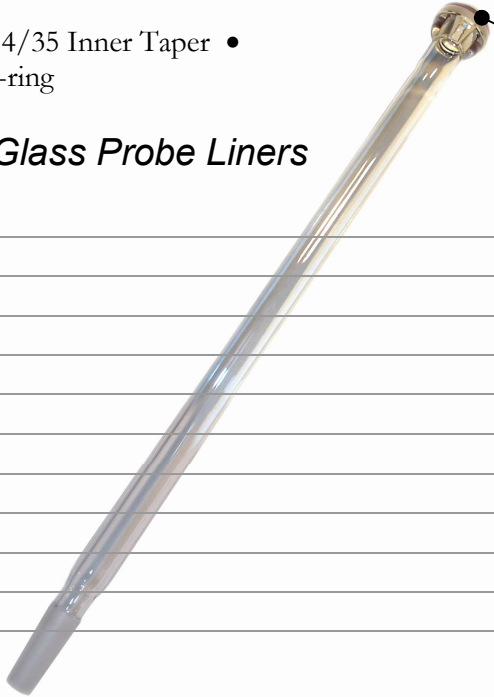
➤ 2' Effective length	Item# 0436-2
➤ 3' Effective length	Item# 0436-3
➤ 4' Effective length	Item# 0436-4
➤ 5' Effective length	Item# 0436-5
➤ 6' Effective length	Item# 0436-6
➤ 7' Effective length	Item# 0436-7
➤ 8' Effective length	Item# 0436-8
➤ 9' Effective length	Item# 0436-9
➤ 10' Effective length	Item# 0436-10
➤ 11' Effective length	Item# 0436-11
➤ 12' Effective length	Item# 0436-12

Overall length is 1' longer than effective length.

Quartz 5/8" O.D. • 14/35 Inner Taper •
28/12 Ball Joint w/O-ring

TFE Coated
Silicone O-ring

Tapered Quartz Glass Probe Liners



➤ 2' Effective length	Item# 0433-2T
➤ 3' Effective length	Item# 0433-3T
➤ 4' Effective length	Item# 0433-4T
➤ 5' Effective length	Item# 0433-5T
➤ 6' Effective length	Item# 0433-6T
➤ 7' Effective length	Item# 0433-7T
➤ 8' Effective length	Item# 0433-8T
➤ 9' Effective length	Item# 0433-9T
➤ 10' Effective length	Item# 0433-10T
➤ 11' Effective length	Item# 0433-11T
➤ 12' Effective length	Item# 0433-12T

Overall length is 1' longer than effective length.

Borosilicate 5/8" O.D. • 14/35 Inner Taper •
28/12 Ball Joint w/O-ring

Tapered Borosilicate Glass Probe Liners

➤ 2' Effective length	Item# 0432-2T
➤ 3' Effective length	Item# 0432-3T
➤ 4' Effective length	Item# 0432-4T
➤ 5' Effective length	Item# 0432-5T
➤ 6' Effective length	Item# 0432-6T
➤ 7' Effective length	Item# 0432-7T
➤ 8' Effective length	Item# 0432-8T
➤ 9' Effective length	Item# 0432-9T
➤ 10' Effective length	Item# 0432-10T
➤ 11' Effective length	Item# 0432-11T
➤ 12' Effective length	Item# 0432-12T

Overall length is 1' longer than effective length.

Titanium Probe Liners



Titanium Liners can be used to replace fragile glass liners used in metals, dioxin, and high temperature testing.

Our Titanium Liners are manufactured on site and are available in many configurations including: tapered and or balljoint connections.

Some of the advantages of using Titanium liners are:

- Eliminate downtime due to broken glass liners
- Reduce Borosilicate and Quartz inventories
- Easier to pack and ship
- Reduce quantity of probe liners necessary to insure completion of projects
- Excellent choice for long probes

Is Titanium a suitable replacement compared to glass?

Study the chemical properties of Titanium grade 2 below and you be the judge!

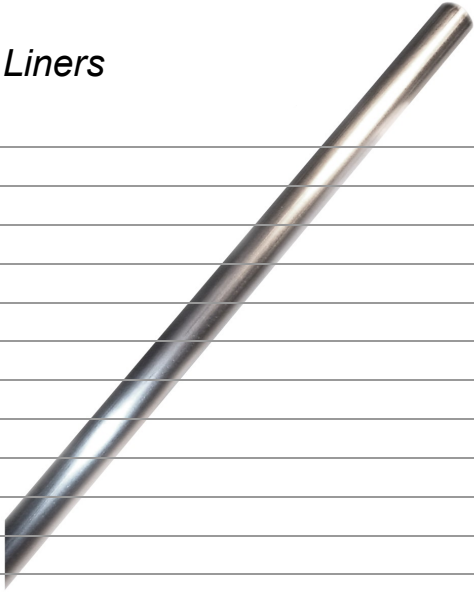
Note: as with any unapproved methods permission should be obtained from your local regulatory agency.

Chemical Composition Limits (%) Titanium Grade 2

Nickel.....	None	Manganese.....	None
Iron.....	0.30%	Silicon.....	None
Chromium.....	None	Tungsten.....	None
Molybdenum...	None	Aluminum.....	None
Copper.....	None	Titanium.....	99.32%
Cobalt.....	None	Vanadium.....	None
Carbon.....	0.08%	Other.....	0.295%

Titanium 5/8" O.D. • Straight w/out Ball Joint

Titanium Probe Liners

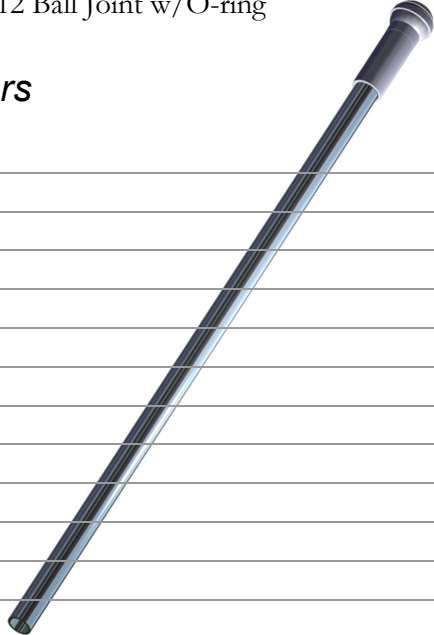


➤ 2' Effective length	Item# 8520-2
➤ 3' Effective length	Item# 8520-3
➤ 4' Effective length	Item# 8520-4
➤ 5' Effective length	Item# 8520-5
➤ 6' Effective length	Item# 8520-6
➤ 7' Effective length	Item# 8520-7
➤ 8' effective length	Item# 8520-8
➤ 9' Effective length	Item# 8520-9
➤ 10' Effective length	Item# 8520-10
➤ 11' Effective length	Item# 8520-11
➤ 12' Effective length	Item# 8520-12

Overall length is 1' longer than effective length.

Titanium 5/8" O.D. • 28/12 Ball Joint w/O-ring

Titanium Probe Liners



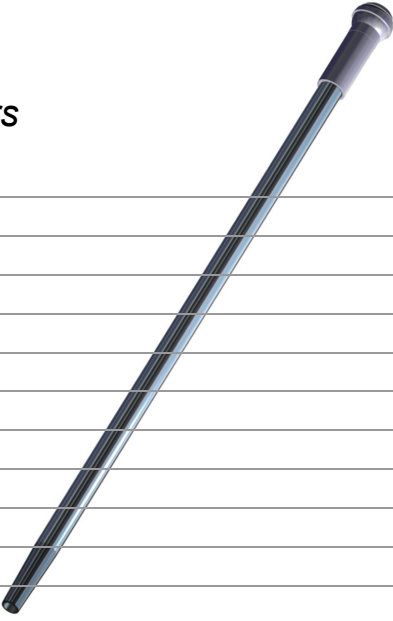
➤ 2' Effective length	Item# 0435-2
➤ 3' Effective length	Item# 0435-3
➤ 4' Effective length	Item# 0435-4
➤ 5' Effective length	Item# 0435-5
➤ 6' Effective length	Item# 0435-6
➤ 7' Effective length	Item# 0435-7
➤ 8' effective length	Item# 0435-8
➤ 9' Effective length	Item# 0435-9
➤ 10' Effective length	Item# 0435-10
➤ 11' Effective length	Item# 0435-11
➤ 12' Effective length	Item# 0435-12

Overall length is 1' longer than effective length.

Titanium 5/8" O.D. • 14/35 Inner Taper

- 28/12 Ball Joint w/O-ring

Titanium Probe Liners



➤ 2' Effective length	Item# 0435-2T
➤ 3' Effective length	Item# 0435-3T
➤ 4' Effective length	Item# 0435-4T
➤ 5' Effective length	Item# 0435-5T
➤ 6' Effective length	Item# 0435-6T
➤ 7' Effective length	Item# 0435-7T
➤ 8' effective length	Item# 0435-8T
➤ 9' Effective length	Item# 0435-9T
➤ 10' Effective length	Item# 0435-10T
➤ 11' Effective length	Item# 0435-11T
➤ 12' Effective length	Item# 0435-12T

Overall length is 1' longer than effective length.



Replacement Probe Heaters

➤ 40" Overall Silicone Heater	Item# 0421-40
➤ 72" Overall Silicone Heater	Item# 0421-72
➤ 80" Overall Silicone Heater	Item# 0421-80
➤ 120" Overall Silicone Heater	Item# 0421-120
➤ 140" Overall Silicone Heater	Item# 0421-140

M-5 Probe Ancillary Items

➤ Replacement S-Type Pitots	Specifications and pricing shown on page 8
➤ Replacement Stack Thermocouple	Specifications and pricing shown on page 10
➤ 10' Probe Rod Kit	Item# 0482-10
➤ S.S. Port Seal Adapter	Item# 8550
➤ Liner T/C W/Standard Male Plug (price includes attachment to liner)	Item# 0456
➤ Teflon Ball Joint Adapter	Item# 9516

M-5 Umbilical Cables and Associated Items

Highly Flexible 3/8" ID Gum Rubber Sample Line • PVC Pitot Lines • 16ga. 5 Cond. Electric Cable • 5 Type "K" Extension Wires With Standard Plugs

Method 5 Umbilical Cables

➤ 25' Umbilical cable	Item# 0650-25
➤ 50' Umbilical cable	Item# 0650-50
➤ 75' Umbilical cable	Item# 0650-75
➤ 100' Umbilical cable	Item# 0650-100

Nozzles and Associated Items



316SS • 5/8" Shank Includes Nut & Ferrule

S.S. Nozzles

➤ *1/8" Gooseneck	Item# 0400-125
➤ *3/16" Gooseneck	Item# 0400-185
➤ 7/32" Gooseneck	Item# 0400-218
➤ *1/4" Gooseneck	Item# 0400-250
➤ *5/16" Gooseneck	Item# 0400-3125
➤ *3/8" Gooseneck	Item# 0400-375
➤ *7/16" Gooseneck	Item# 0400-4375
➤ *1/2" Gooseneck	Item# 0400-500
➤ 9/16" Gooseneck	Item# 0400-5625
➤ 5/8" Gooseneck	Item# 0400-625
➤ 3/4" Gooseneck	Item# 0400-750
➤ 1" Gooseneck	Item# 0400-1
➤ 1.5" Gooseneck	Item# 0400-1.5
➤ SS Nozzle set (Includes items marked with an *, foam lined carrying case)	Item# 0400-S

5/8" Shank



Borosilicate Glass Nozzles

➤ *1/8" Gooseneck	Item# 0402-125
➤ *3/16" Gooseneck	Item# 0402-185
➤ *1/4" Gooseneck	Item# 0402-250
➤ *5/16" Gooseneck	Item# 0402-3125
➤ *3/8" Gooseneck	Item# 0402-375
➤ *7/16" Gooseneck	Item# 0402-4375
➤ *1/2" Gooseneck	Item# 0402-500
➤ 5/8" Gooseneck	Item# 0402-625
➤ 3/4" Gooseneck	Item# 0402-750
➤ Borosilicate Nozzle Set (Includes items marked with an *, foam lined carrying case)	Item# 0402-S

5/8" Shank

Quartz Nozzles

➤ *1/8" Gooseneck	Item# 0403-125
➤ *3/16" Gooseneck	Item# 0403-185
➤ *1/4" Gooseneck	Item# 0403-250
➤ *5/16" Gooseneck	Item# 0403-3125
➤ *3/8" Gooseneck	Item# 0403-375
➤ *7/16" Gooseneck	Item# 0403-4375
➤ *1/2" Gooseneck	Item# 0403-500
➤ 5/8" Gooseneck	Item# 0403-625
➤ 3/4" Gooseneck	Item# 0403-750
➤ Quartz Nozzle Set (Includes items marked with an *, foam lined carrying case)	Item# 0403-S



Tapered Quartz Nozzles

14/35 Female Taper

➤ *1/8" Gooseneck	Item# 0404-125
➤ *3/16" Gooseneck	Item# 0404-185
➤ *1/4" Gooseneck	Item# 0404-250
➤ *5/16" Gooseneck	Item# 0404-3125
➤ *3/8" Gooseneck	Item# 0404-375
➤ *7/16" Gooseneck	Item# 0404-4375
➤ *1/2" Gooseneck	Item# 0404-500
➤ 5/8" Gooseneck	Item# 0404-625
➤ 3/4" Gooseneck	Item# 0404-750
➤ Tapered Quartz Nozzle Set (Includes items marked with an *, foam lined carrying case)	Item# 0404-S

Tapered Borosilicate Glass Nozzles

14/35 Female Taper

➤ *1/8" Gooseneck	Item# 0405-125
➤ *3/16" Gooseneck	Item# 0405-185
➤ *1/4" Gooseneck	Item# 0405-250
➤ *5/16" Gooseneck	Item# 0405-3125
➤ *3/8" Gooseneck	Item# 0405-375
➤ *7/16" Gooseneck	Item# 0405-4375
➤ *1/2" Gooseneck	Item# 0405-500
➤ 5/8" Gooseneck	Item# 0405-625
➤ 3/4" Gooseneck	Item# 0405-750
➤ Tapered Borosilicate Nozzle Set (Includes items marked with an *, foam lined carrying case)	Item# 0405-S

5/8" Shank • Inconel Ferrule

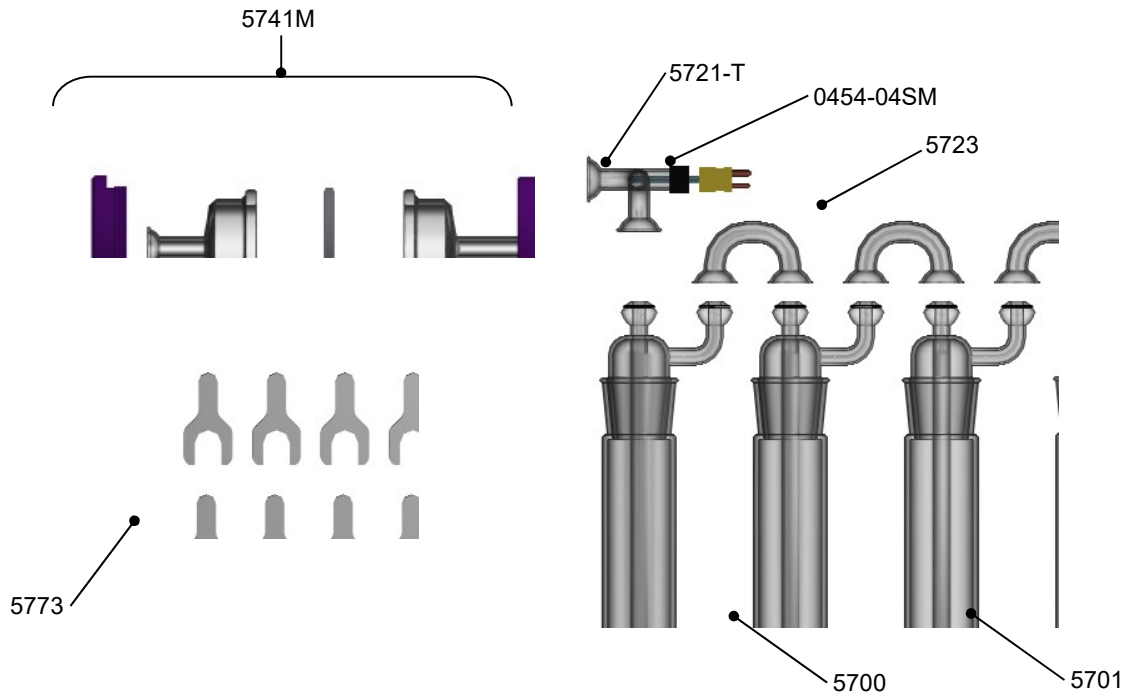
Inconel Nozzles

➤ *1/8" Gooseneck	Item# 0401-125
➤ *3/16" Gooseneck	Item# 0401-185
➤ *1/4" Gooseneck	Item# 0401-250
➤ *5/16" Gooseneck	Item# 0401-3125
➤ *3/8" Gooseneck	Item# 0401-375
➤ *7/16" Gooseneck	Item# 0401-4375
➤ *1/2" Gooseneck	Item# 0401-500
➤ 9/16" Gooseneck	Item# 0401-5625
➤ 5/8" Gooseneck	Item# 0401-625
➤ 3/4" Gooseneck	Item# 0401-750
➤ 1" Gooseneck	Item# 0401-1
➤ 1.5" Gooseneck	Item# 0401-1.5
➤ Inconel Nozzle Set (Includes items marked with an *, foam lined carrying case)	Item# 0401-S

Nozzle Accessories

➤ 5/8" S.S. Ferrule	Item# 9528
➤ 5/8" Teflon Ferrule	Item# 9528-T
➤ 5/8" Graphite Ferrule (12 Pack)	Item# 9528-G
➤ 5/8" S.S. Union	Item# 9513
➤ 5/8" Teflon Union	Item# 9513T
➤ 5/8" Inconel Union	Item# 9513I
➤ Nozzle Brush Set	Item# 0400-B
➤ Calipers	Item# 0400-C
➤ S.S. Nozzle Straightening Tool (for metal nozzles only)	Item# 9567

Glassware and Associated Items



Heavy Wall Construction • Ground Glass Single O-ring Joints

Mill 5 Glassware Set

Item# 5501

Set W/Out Thermocouple Double "L" (Includes Standard Double "L")

Item# 5501-1

➤ Greenburg Smith Impinger Assembly	Qty. 1	Item# 5700
➤ Modified Impinger Assembly	Qty. 3	Item# 5701
➤ 180 Degree Bend	Qty. 3	Item# 5723
➤ 3" Glass Filter Holder Assembly	Qty. 1	Item# 5741M
➤ Double "L" Adapter W/Threaded T/C Connection	Qty. 1	Item# 5721
➤ 4" Solid Thermocouple W/Std. Male Plug	Qty. 1	Item# 0454-04SM
➤ #28 S.S. Pinchclamp	Qty. 10	Item# 5773

Heavy Wall Construction • Ground Glass Single O-ring Joints • Transport Case

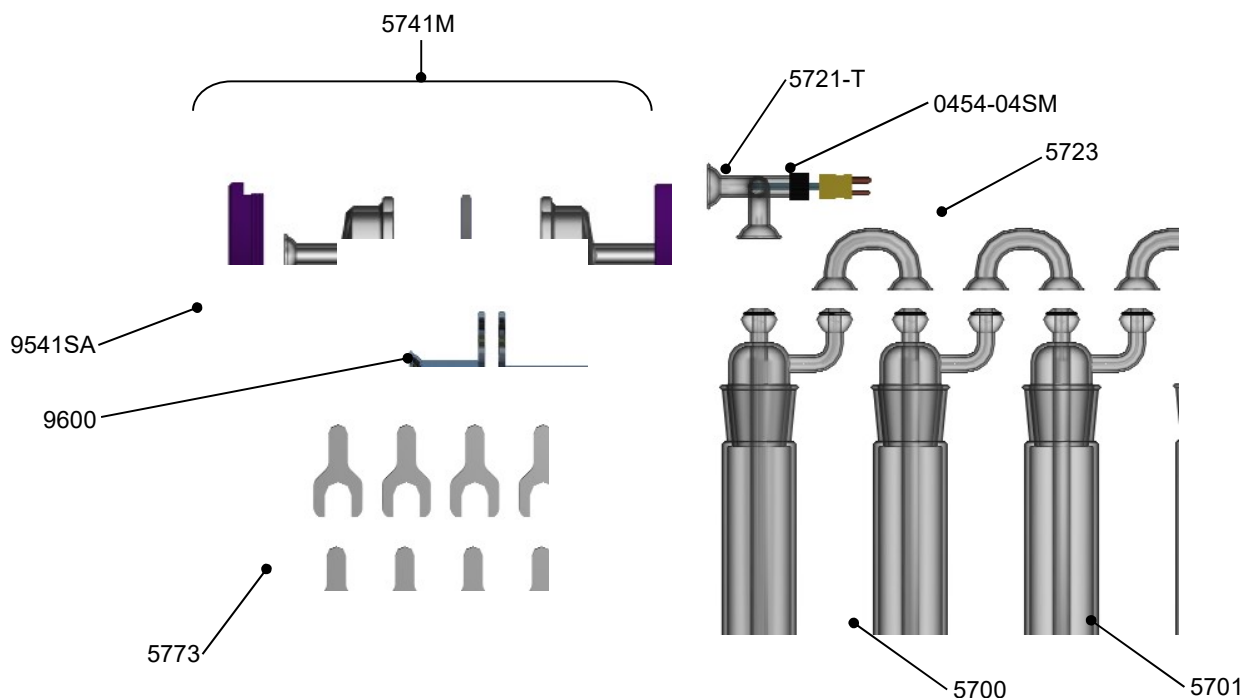
Mill 5 Glassware System

Item# 5501S

System W/Out Thermocouple Double "L" (Includes Standard Double "L")

Item# 5501S-1

➤ Greenburg Smith Impinger Assembly	Qty. 3	Item# 5700
➤ Modified Impinger Assembly	Qty. 9	Item# 5701
➤ 180 Degree Bend	Qty. 9	Item# 5723
➤ 3" Glass Filter Holder Assembly	Qty. 3	Item# 5741M
➤ Double "L" Adapter W/Threaded T/C Connection	Qty. 3	Item# 5721
➤ 4" Solid Thermocouple W/Std. Male Plug	Qty. 3	Item# 0454-04SM
➤ #28 S.S. Pinchclamp	Qty. 30	Item# 5773
➤ Interior Filter Holder Transport Case	Qty. 1	Item# 5501FC
➤ System Transport Case	Qty. 1	Item# 5501SC



Heavy Wall Construction • Ground Glass Single O-ring Joints

Millennium M-5 Glassware Set

Item# 5502

Set W/Out Thermocouple Double "L" (Includes Standard Double "L")

Item# 5502-1

➤ Greenburg Smith Impinger Assembly	Qty. 1	Item# 5700
➤ Modified Impinger Assembly	Qty. 3	Item# 5701
➤ 180 Degree Bend	Qty. 3	Item# 5723
➤ 3" Glass Filter Holder Assembly	Qty. 1	Item# 5741M
➤ Double "L" Adapter W/Threaded T/C Connection	Qty. 1	Item# 5721-T
➤ 4" Solid Thermocouple W/Std. Male Plug	Qty. 1	Item# 0454-04SM
➤ #28 S.S. Pinchclamp	Qty. 10	Item# 5773
➤ Hosebarb - #28 S.S. Socket Adapter	Qty. 1	Item# 9541SA
➤ 3" S.S. Filter Halves Set	Qty. 1	Item# 9600

Heavy Wall Construction • Ground Glass Single O-ring Joints • Transport Case

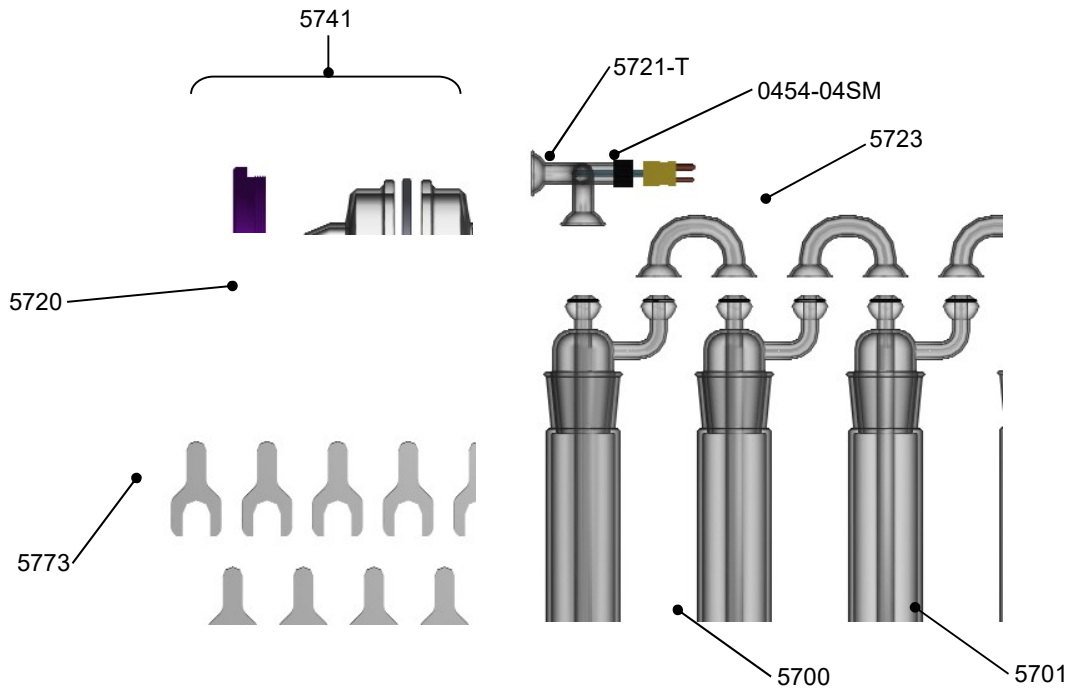
Millennium M-5 Glassware System

Item# 5502S

System W/Out Thermocouple Double "L" (Includes Standard Double "L")

Item# 5502S-1

➤ Greenburg Smith Impinger Assembly	Qty. 3	Item# 5700
➤ Modified Impinger Assembly	Qty. 9	Item# 5701
➤ 180 Degree Bend	Qty. 9	Item# 5723
➤ 3" Glass Filter Holder Assembly	Qty. 3	Item# 5741M
➤ Double "L" Adapter W/Threaded T/C Connection	Qty. 3	Item# 5721-T
➤ 4" Solid Thermocouple W/Std. Male Plug	Qty. 3	Item# 0454-04SM
➤ #28 S.S. Pinchclamp	Qty. 30	Item# 5773
➤ Hosebarb - #28 S.S. Socket Adapter	Qty. 3	Item# 9541SA
➤ 3" S.S. Filter Halves Set	Qty. 3	Item# 9600
➤ Interior Filter Holder Transport Case	Qty. 1	Item# 5502FC
➤ System Transport Case	Qty. 1	Item# 5502SC



Heavy Wall Construction • Ground Glass Single O-ring Joints

Traditional M-5 Glassware Set

Item# 5500

Set W/Out Thermocouple Double "L" (Includes Standard Double "L")

Item# 5500-1

➤ Greenburg Smith Impinger Assembly	Qty. 1	Item# 5700
➤ Modified Impinger Assembly	Qty. 3	Item# 5701
➤ 180 Degree Bend	Qty. 3	Item# 5723
➤ Cyclone Bypass	Qty. 1	Item# 5720
➤ Double "L" Adapter W/Threaded T/C Connection	Qty. 1	Item# 5721-T
➤ 4" Solid Thermocouple W/Std. Male Plug	Qty. 1	Item# 0454-04SM
➤ 3" Glass Filter Holder (90°) Assembly	Qty. 1	Item# 5741
➤ #28 S.S. Pinchclamp	Qty. 11	Item# 5773



Heavy Wall Construction • Ground Glass Single O-ring Joints

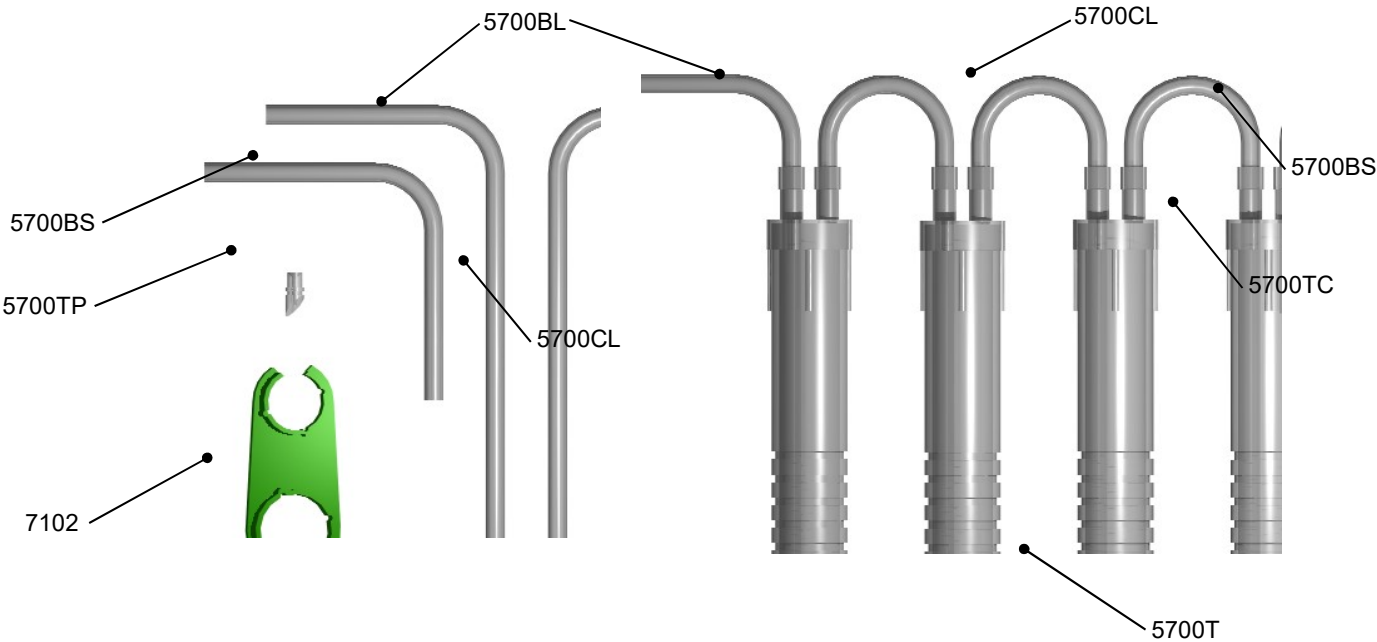
Traditional M-5 Glassware System

Item# 5500S

System W/Out Thermocouple Double "L" (Includes Standard Double "L")

Item# 5500S-1

➤ Greenburg Smith Impinger Assembly	Qty. 3	Item# 5700
➤ Modified Impinger Assembly	Qty. 9	Item# 5701
➤ 180 Degree Bend	Qty. 9	Item# 5723
➤ Cyclone Bypass	Qty. 3	Item# 5720
➤ Double "L" Adapter W/Threaded T/C Connection	Qty. 3	Item# 5721
➤ 4" Solid Thermocouple W/Std. Male Plug	Qty. 3	Item# 0454-04SM
➤ 3" Glass Filter Holder (90°) Assembly	Qty. 3	Item# 5741
➤ #28 S.S. Pinchclamp	Qty. 33	Item# 5773
➤ Interior Filter Holder Transport Case	Qty. 1	Item# 5500FC
➤ System Transport Case	Qty. 1	Item# 5500SC



Teflon Impingers

➤ 600 ml Teflon Impinger	Item# 5700T
➤ Transfer Cap	Item# 5700TC
➤ 90° Bend (long)	Item# 5700BL
➤ 90° Bend (short)	Item# 5700BS
➤ 180° Tube Connector (long)	Item# 5700CL
➤ 2.3 mm Orifice Tip	Item# 5700TP
➤ Wrench	Item# 7102

M-5 Replacement Glassware

➤ Greenburg Smith Impinger Assembly	Item# 5700
➤ Impinger Insert	Item# 5700-I
➤ Impinger Bottle	Item# 5700-B
➤ Modified Impinger Assembly	Item# 5701
➤ Modified Impinger Insert	Item# 5701-I
➤ 180 Degree Bend	Item# 5723
➤ Cyclone Bypass	Item# 5720
➤ 3" Glass Filter Holder Assembly	Item# 5741M
➤ 3" Glass Filter Holder (90°) Assembly	Item# 5741
➤ 3" Teflon Frit	Item# 5745
➤ 3" Clamp Ring	Item# 5770
➤ 3" Glass Filter Inlet Half	Item# 5741-MI
➤ 3" Glass Filter Outlet Half	Item# 5741-MO
➤ 3" Glass Filter Inlet Half (90°)	Item# 5741-I
➤ 3" Glass Filter Outlet Half (short)	Item# 5741-O
➤ Double "L" Adapter	Item# 5721
➤ Double "L" Adapter W/Threaded T/C Connection	Item# 5721-T
➤ #28 S.S. Pinchclamp	Item# 5773
➤ Hosebarb - #28 S.S. Socket Adapter	Item# 9541SA
➤ 3" S.S. Filter Halves Set	Item# 9600
➤ 3" S.S. Filter Assembly Complete	Item# 9601
➤ Impinger Insert O-Ring Teflon	Item# 0546
➤ Impinger Insert O-Ring Silicone	Item# 0546-S
➤ #28 O-Ring Teflon	Item# 0525
➤ #28 O-Ring Silicone	Item# 0525-S
➤ 3" Teflon O-Ring	Item# 0528
➤ Impinger Outlet	Item# 0610
➤ 47 mm Glass Filter Holder Assembly	Item# 5743

Filter Media



Glass Fiber Filters

Boxes of 100

➤ 47 mm Glass	Item# 1030
➤ 85 mm Glass	Item# 1034
➤ 110 mm Glass	Item# 1036

Quartz Fiber Filters

Boxes of 25

➤ 47 mm Quartz	Item# 1031
➤ 82.6 mm Quartz	Item# 1033
➤ 85 mm Quartz	Item# 1035
➤ 110 mm Quartz	Item# 1037
➤ 8" X 10" Quartz	Item# 1039

Teflon Fiber Filters

Boxes of 25

➤ 82.6 mm Teflon	Item# 1042
➤ 85 mm Teflon	Item# 1046
➤ 110 mm Teflon	Item# 1050

Misc. Items Associated With Method 5

➤ Recirculation Pump	<i>Item# 0124</i>
➤ Critical Orifice Set S.S.	<i>Item# 0605-S</i>

Replacement Dry Gas Meters

➤ T-110 Rockwell Cubic Foot ($\frac{1}{10}$ cubic foot per revolution)	<i>Item# 95110-CU</i>
➤ T-110 Rockwell Metric (1 liter per revolution)	<i>Item# 95110-L</i>
➤ S-275 Equimeter Cubic Foot ($\frac{1}{10}$ cubic foot per revolution)	<i>Item# 95275-CU</i>
➤ S-275 Equimeter Metric (1 liter per revolution)	<i>Item# 95275-L</i>

Gas Meter Reconditioning

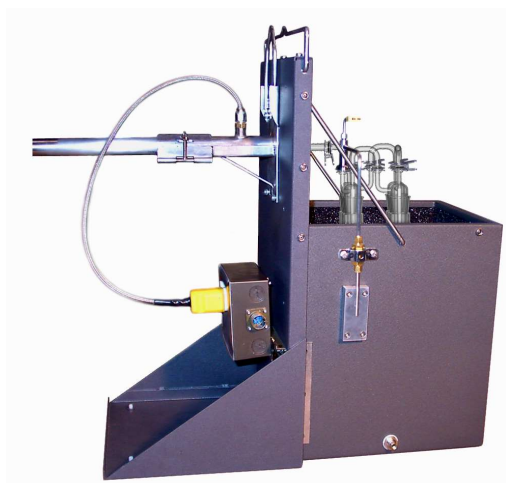


Method 6

Gas Sampling Equipment

Determination of Sulfur Dioxide Emissions from Stationary Sources

This Method is applicable for the determination of sulfur dioxide emissions from stationary sources.



Item# 2160

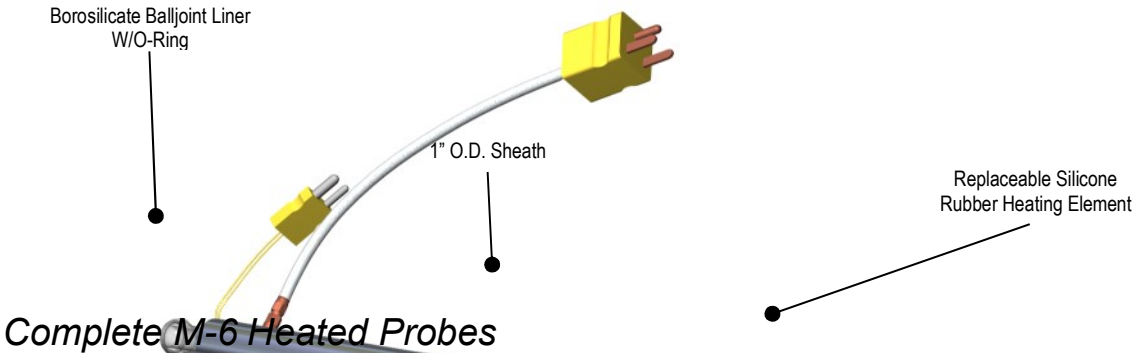
Mill 6 Sampling System

(System includes items listed below)

➤ Mill 5 Control Console (no pump)	<i>Item# 0120-C *</i>
➤ Mill 5 Sample Console Configured For M-6	<i>Item# 0310-6</i>
➤ 6' S.S. Heated Source Sampling Probe (12-5 ball joint borosilicate liner)	<i>Item# 0416-6</i>
➤ 25' Umbilical Cable	<i>Item# 0636-25</i>
➤ Impinger Outlet (Midget)	<i>Item# 0611</i>
➤ Mill 6 Glassware Set	<i>Item# 5506</i>
➤ Umbilical Junction Box (4-pin adapter)	<i>Item# 0618</i>
➤ Sample Pump W/Flowmeter	<i>Item# 0121-P</i>

* Metric control console is available with 1 liter per revolution dry gas meter.

M-6 Probes and Associated Items



Complete M-6 Heated Probes

1" O.D. S.S. Construction • 120 V Heating Element •
Type "K" Probe t/c • 12/5 Balljoint W/O-ring Borosilicate
3/8" O.D. Liner with 5/8" Cup

➤ 4' Borosilicate Heated M-6 Probe	Item# 0416-4
➤ 6' Borosilicate Heated M-6 Probe	Item# 0416-6



Method 6 Probe Liners

12/5 Ball Joint W/O-ring • Available in Quartz,
Borosilicate, or S.S.

➤ 4' Effective M-6 Borosilicate Replacement Liner	Item# 0438-4
➤ 6' Effective M-6 Borosilicate Replacement Liner	Item# 0438-6

M-6 Umbilical Cables and Associated Items

Method 6 Umbilical Cables

Highly Flexible 3/8" ID Gum Rubber Sample Line • 16ga. 5 Cond.
Electric Cable • 3 Type "K" Extension Wires With Mini Plugs

➤ 10' Umbilical cable	Item# 0636-10
➤ 25' Umbilical cable	Item# 0636-25

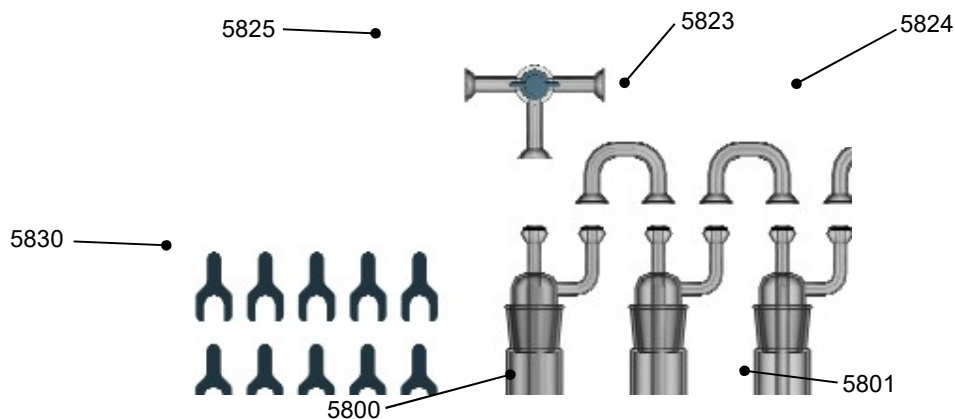
Misc. Items Associated With Method 6

Critical Orifice Adaptation For Method 6 Sampling Train

1/2" S.S. Quick Connect • S.S. Orifice Plate •
Supplied with Calibration Data

➤ 1 Liter	Item# 0605-1
➤ 2 Liter	Item# 0605-2

Glassware and Associated Items



Heavy Wall Construction • Ground Glass Single O-ring Joints

Item# 5506

Mill 6 Glassware Set

12/5 Ball Joint Connections

(System Includes Items Listed Below)

➤ Midget Impinger Assembly	Qty. 1	Item# 5800
➤ Modified Midget Impinger Assembly	Qty. 3	Item# 5801
➤ Midget 180° Connector	Qty. 3	Item# 5823
➤ Midget 90° Connector	Qty. 1	Item# 5824
➤ Clamps	Qty. 10	Item# 5830
➤ 3-Way Valve	Qty. 1	Item# 5825

Item# 9587

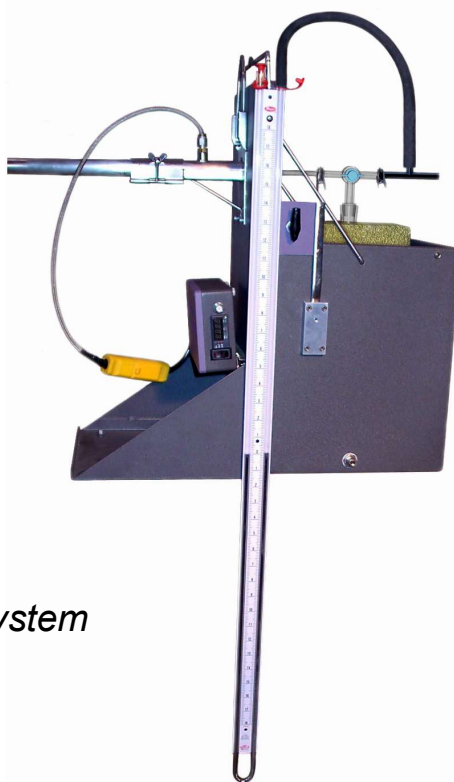
Glass Wool

Method 7

Gas Sampling Equipment

Determination of Nitrogen Oxide Emissions from Stationary Sources

This Method is applicable to the measurement of nitrogen oxides emitted from stationary sources.



Item# 2100-7

Mill-7 Complete Sampling System

Complete W/Control Unit •

NO_x Flasks Included

(Set Includes Items Listed Below)

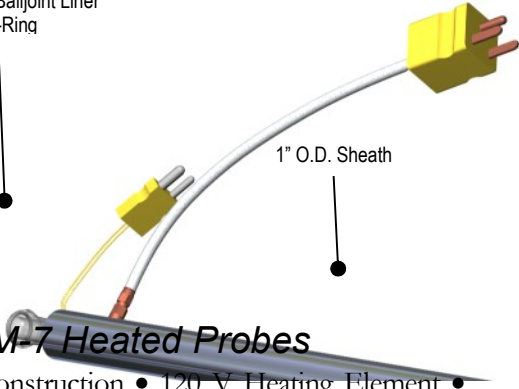
➤ Mill 5 Sample Console Configured For M-7	Qty. 1	Item# 0310-7
➤ Vacuum Pump	Qty. 1	Item# 0125
➤ 6' M-7 Probe	Qty. 1	Item# 0417-6
➤ 2-Liter Foam Insulated Flask W/3-Way Valve	Qty. 13	Item# 5790
➤ Flask Dial Thermometer	Qty. 1	Item# 0450-04FT
➤ 36" U-Tube Manometer (<i>mercury not included</i>)	Qty. 1	Item# 0642M-36
➤ Digital Temperature Controller	Qty. 1	Item# 0370

M-7 Probes and Associated Items

Borosilicate Balljoint Liner
W/O-Ring

1" O.D. Sheath

Replaceable Silicone
Rubber Heating Element



Complete M-7 Heated Probes
1" O.D. S.S. Construction • 120 V Heating Element •
Type "K" Probe t/c • 12/5 Balljoint W/O-ring
Borosilicate 3/8" O.D. Liner with 5/8" Cup

➤ 4' S.S. Heated M-7 Probe	Item# 0417-4
➤ 6' S.S. Heated M-7 Probe	Item# 0417-6



Method 7 Probe Liners
12/5 Ball Joint W/O-ring • Available in Quartz,
Borosilicate, or S.S.

5/8" Cup For Glass Wool

➤ 4' Effective M-7 Borosilicate Replacement Liner	Item# 0437-4
➤ 6' Effective M-7 Borosilicate Replacement Liner	Item# 0437-6

Method 8A

Gas Sampling Equipment

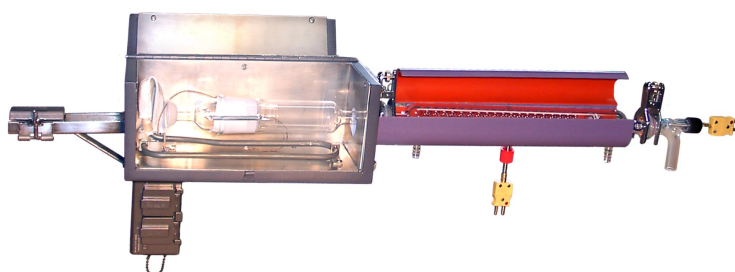
This Method is Applicable for the Determination of Sulfuric Acid Vapor or Mist (including Sulfur Trioxide, and in the presence of other particulate matter) and Sulfur Dioxide Emissions from Kraft Recovery Furnaces.



Item# 2100-8A

Mill-M8A Sampling System

(System includes items listed below)

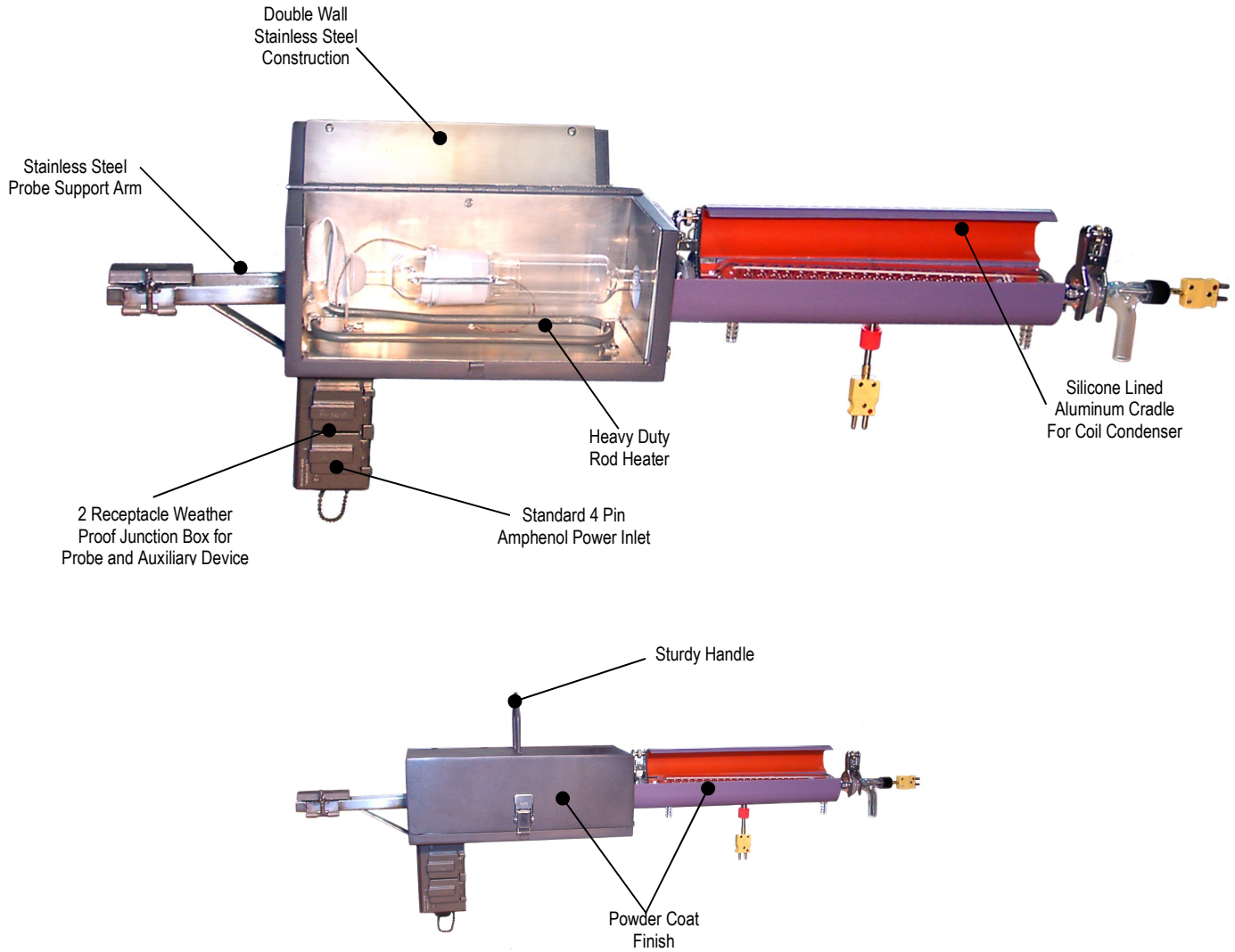


➤ Mill 5 Control Console	<i>Item# 0120</i>
➤ M-8A Sample Oven	<i>Item# 0320</i>
➤ 6' S.S. Millennium M-8A Probe (Quartz ball joint liner)	<i>Item# 0418A-6</i>
➤ 25' Umbilical Cable	<i>Item# 0638A-25</i>
➤ Impinger Outlet	<i>Item# 0610</i>
➤ Millennium 8A Glassware Set	<i>Item# 5505-8A</i>
➤ 34 x 100 Quartz Thimble (24 pack)	<i>Item# 7080-Q</i>

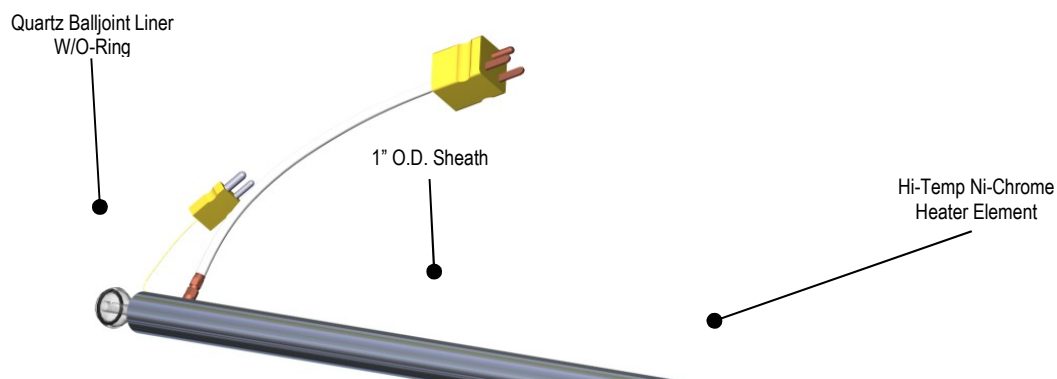
Method 8A Sample Oven

➤ M-8A Sample Oven

Item# 0320



M-8A Probes and Associated Items



S.S. Millennium-M8A Probes

S.S. Construction • High Temperature Insulation • Nichrome Heating Element • #28 Balljoint W/O-ring Borosilicate $\frac{3}{8}$ " O.D. Liner with $\frac{1}{2}$ " Cup • 700°F Operating Temp.

➤ 4' S.S. Millennium-M8A Probe	Item# 0418A-4
➤ 6' S.S. Millennium-M8A Probe	Item# 0418A-6
➤ 10' S.S. Millennium-M8A Probe	Item# 0418A-10



Method 8A Probe Liners

28/12 Ball Joint W/O-ring • $\frac{3}{8}$ " O.D. Quartz • With $\frac{1}{2}$ " O.D. Cup

➤ 4' Effective M-8A Quartz Replacement Liner	Item# 0438A-4
➤ 6' Effective M-8A Quartz Replacement Liner	Item# 0438A-6
➤ 10' Effective M-8A Quartz Replacement Liner	Item# 0438A-10

M-8A Umbilical Cables and Associated Items

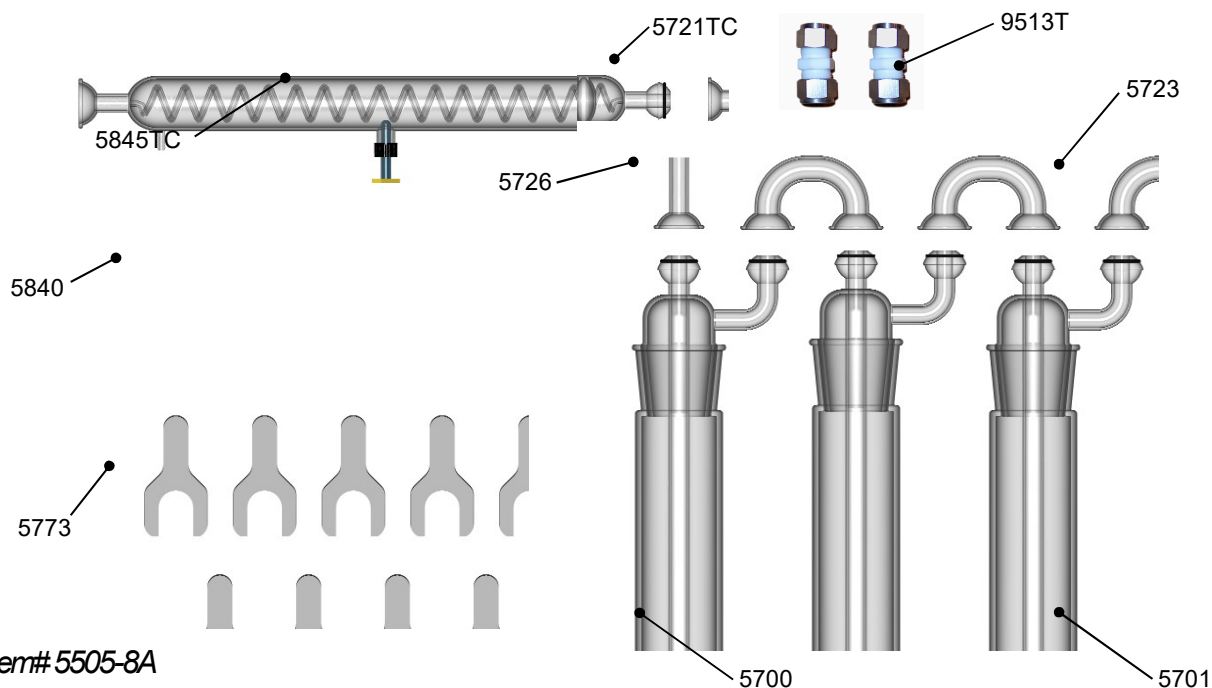
Mill-8A Umbilical Cables

Highly Flexible 3/8" ID Gum Rubber Sample Line •
16ga. 5 Cond. Electric Cable • 5 Type "K" Extension
Wires With Standard Plugs

➤ 25' Umbilical cable

Item# 0638A-25

Glassware and Associated Items



Item# 5505-8A

Millennium-M8A Glassware Set

Heavy Wall Construction • 28/12

Ground Glass Single O-ring Joints

(Set Includes Items Listed Below)

➤ Greenburg Smith Impinger Assembly	Qty. 2	Item# 5700
➤ Modified Impinger Assembly	Qty. 2	Item# 5701
➤ 180 Degree Bend	Qty. 3	Item# 5723
➤ Coil Condenser Adapter W / TC	Qty. 1	Item# 5721TC
➤ #28 S.S. Pinchclamp	Qty. 11	Item# 5773
➤ Quartz Thimble Holder 30mm X 100mm	Qty. 1	Item# 5840
➤ Graham Condenser W / Frit & Water Jacket T/C	Qty. 1	Item# 5845TC
➤ #28 Socket Adapter	Qty. 1	Item# 5726
➤ 5/8" Teflon Union	Qty. 2	Item# 9513T

➤ Graham Condenser W / Frit W / Out TC		Item# 5845
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Method 17/ISO 9096

Gas Sampling Equipment

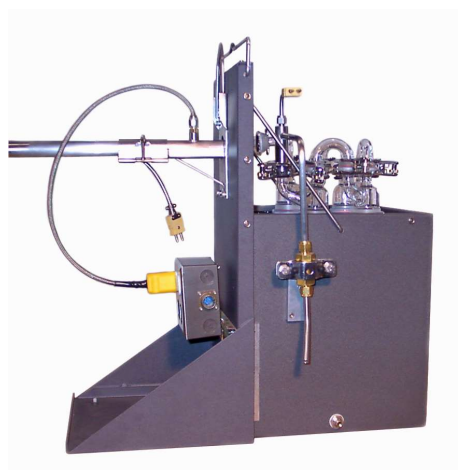
Determination of Particulate Emissions from Stationary Source (in stack filtration method)



Item# 2100-17

Millennium-M17 Sampling System

(System includes items listed below)



➤ Mill 5 Control Console	Item# 0120
➤ Mill 5 Sample Console Configured For M-17	Item# 0303
➤ 6' S.S. Millennium M-17 Probe	Item# 0481-6H
➤ 50' Umbilical Cable	Item# 06317-50
➤ S.S. Nozzle Set	Item# 0400-S
➤ Impinger Outlet	Item# 0610
➤ Alundum Thimble Holder	Item# 7080
➤ 47mm S.S. Filter Holder	Item# 7085
➤ Millennium M17 Glassware Set	Item# 5505
➤ 34 x 100 Alundum Thimble (6 pack)	Item# 7080-AT
➤ 47mm Glass Fiber Filters (box of 100)	Item# 1030
➤ Nozzle Brush Set	Item# 0400-B
➤ 1/2" Pipe - 3/8" Pipe S.S. Union	Item#9502
➤ 1/2" Pipe - 5/8" Tube S.S. Union	Item#9503
➤ 3/8" Pipe - 5/8" Tube S.S. Union	Item#9501

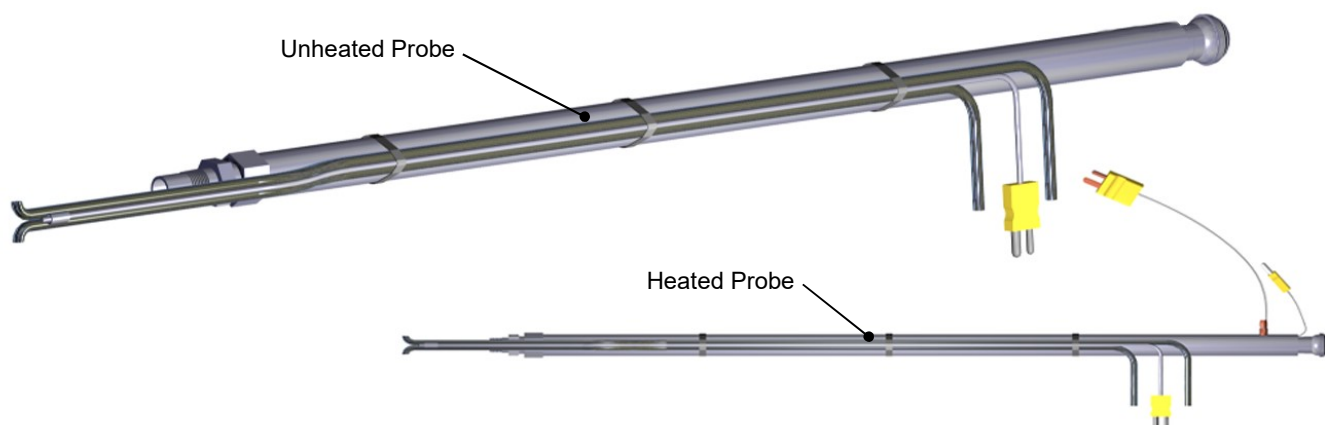


Item# 2100-17M

Mill-17 Sampling System (System includes items listed below)

➤ Mill 5 Control Console	<i>Item# 0120</i>
➤ 6' S.S. Mill M-17 Probe	<i>Item# 0480-6</i>
➤ 50' Umbilical Cable	<i>Item# 0635-SOC</i>
➤ S.S. Nozzle Set	<i>Item# 0400-S</i>
➤ Alundum Thimble Holder	<i>Item# 7080</i>
➤ 47mm S.S. Filter Holder	<i>Item# 7085</i>
➤ Mill 17 Glassware Set	<i>Item# 5512</i>
➤ 34 x 100 Alundum Thimble (6 pack)	<i>Item# 7085-AT</i>
➤ 47mm Glass Fiber Filters (box of 100)	<i>Item# 1030</i>
➤ Nozzle Brush Set	<i>Item# 0400-B</i>
➤ Shepard Hook	<i>Item# 0480-SE</i>
➤ Condensate Cooler	<i>Item# 0311-C</i>
➤ 1/2" Pipe - 3/8" Pipe S.S. Union	<i>Item# 9502</i>
➤ 1/2" Pipe - 5/8" Tube S.S. Union	<i>Item# 9503</i>
➤ 3/8" Pipe - 5/8" Tube S.S. Union	<i>Item# 9501</i>
➤ 1/2" Pipe - 3/8" Pipe S.S. Hex Reducer	<i>Item# 9580</i>

M-17 Probes and Associated Items

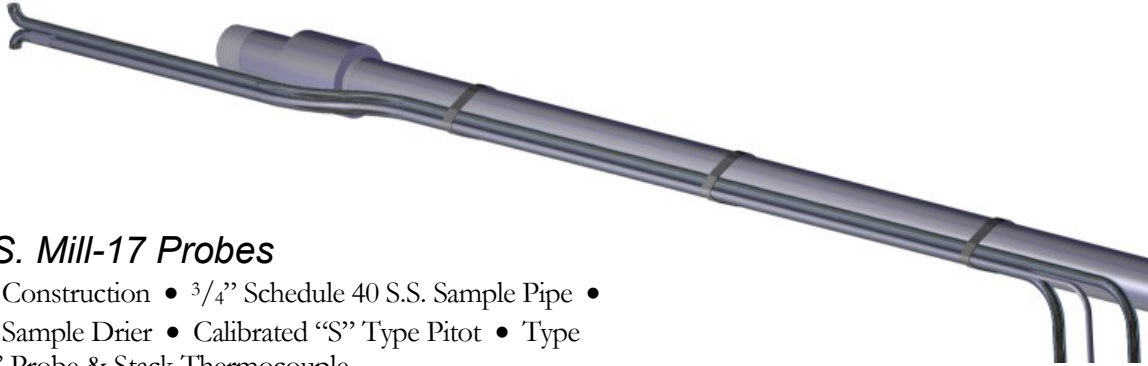


S.S. Millennium-M17 Probes

S.S. Construction • 120V Silicone Heating Element • Calibrated
“S” Type Pitot • S.S. Probe Liner • S.S. Filter Union • Type “K”
Probe & Stack Thermocouple

	Heated	Unheated
➤ 2' S.S. Millennium-M17 Probe	<i>Item# 0481-2H</i>	<i>Item# 0481-2</i>
➤ 3' S.S. Millennium-M17 Probe	<i>Item# 0481-3H</i>	<i>Item# 0481-3</i>
➤ 4' S.S. Millennium-M17 Probe	<i>Item# 0481-4H</i>	<i>Item# 0481-4</i>
➤ 5' S.S. Millennium-M17 Probe	<i>Item# 0481-5H</i>	<i>Item# 0481-5</i>
➤ 6' S.S. Millennium-M17 Probe	<i>Item# 0481-6H</i>	<i>Item# 0481-6</i>
➤ 7' S.S. Millennium-M17 Probe	<i>Item# 0481-7H</i>	<i>Item# 0481-7</i>
➤ 8' S.S. Millennium-M17 Probe	<i>Item# 0481-8H</i>	<i>Item# 0481-8</i>
➤ 9' S.S. Millennium-M17 Probe	<i>Item# 0481-9H</i>	<i>Item# 0481-9</i>
➤ 10' S.S. Millennium-M17 Probe	<i>Item# 0481-10H</i>	<i>Item# 0481-10</i>
➤ 11' S.S. Millennium-M17 Probe	<i>Item# 0481-11H</i>	<i>Item# 0481-11</i>
➤ 12' S.S. Millennium-M17 Probe	<i>Item# 0481-12H</i>	<i>Item# 0481-12</i>

Standard lengths available up to 20' call representative for pricing and availability



S.S. Mill-17 Probes

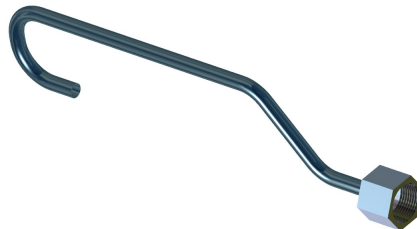
S.S. Construction • $\frac{3}{4}$ " Schedule 40 S.S. Sample Pipe •
 S.S. Sample Drier • Calibrated "S" Type Pitot • Type
 "K" Probe & Stack Thermocouple

➤ 2' S.S. M-17 Probe	Item# 0480-2
➤ 3' S.S. M-17 Probe	Item# 0480-3
➤ 4' S.S. M-17 Probe	Item# 0480-4
➤ 5' S.S. M-17 Probe	Item# 0480-5
➤ 6' S.S. M-17 Probe	Item# 0480-6
➤ 7' S.S. M-17 Probe	Item# 0480-7
➤ 8' S.S. M-17 Probe	Item# 0480-8
➤ 9' S.S. M-17 Probe	Item# 0480-9
➤ 10' S.S. M-17 Probe	Item# 0480-10
➤ 11' S.S. M-17 Probe	Item# 0480-11
➤ 12' S.S. M-17 Probe	Item# 0480-12

Standard lengths available up to 20' call representative for pricing and availability

Shepherd Hooks

➤ 47mm Filter Holder Only	Item# 0480-S
➤ Thimble Holder & 47mm Filter Holder	Item# 0480-SE
➤ Probe Drier	Item# 0480-D



M-17 Umbilical Cables and Associated Items

Mill-17 Umbilical Cables

Highly Flexible 3/8" ID Gum Rubber Sample Line •
PVC Pitot Lines • 2 Type "K" Extension Wires With
Standard Plugs

➤ 25' Umbilical cable	Item# 06317-25
➤ 50' Umbilical cable	Item# 06317-50
➤ 75' Umbilical cable	Item# 06317-75
➤ 100' Umbilical cable	Item# 06317-100

Nozzles and Associated Items

S.S. Nozzles

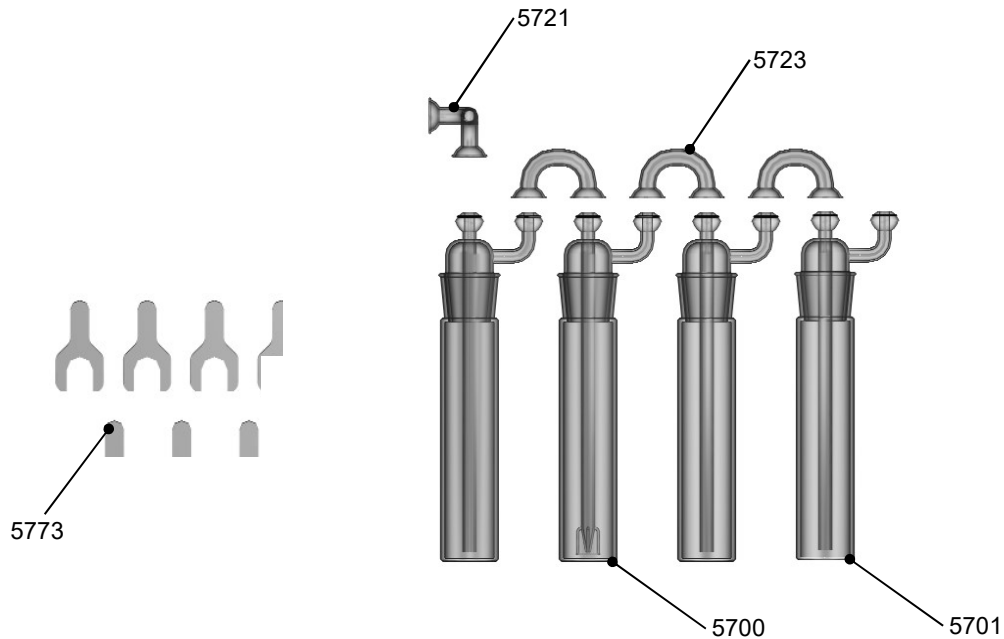
316SS • 5/8" Shank Includes Nut & Ferrule

➤ *1/8" Gooseneck	Item# 0400-125
➤ *3/16" Gooseneck	Item# 0400-185
➤ *1/4" Gooseneck	Item# 0400-250
➤ *5/16" Gooseneck	Item# 0400-3125
➤ *3/8" Gooseneck	Item# 0400-375
➤ *7/16" Gooseneck	Item# 0400-4375
➤ *1/2" Gooseneck	Item# 0400-500
➤ SS Nozzle set (Includes items marked with an *, foam lined carrying case)	Item# 0400-S

M-17 Nozzle Accessories

➤ Nozzle Brush Set	Item# 0400-B
➤ 3/8" Pipe – 5/8" Tube S.S. Union	Item# 9501
➤ 1/2" Pipe – 5/8" Tube S.S. Union	Item# 9503

Glassware and Associated Items



Heavy Wall Construction • Ground Glass Single O-ring Joints

Item# 5505

Millennium-M17 Glassware Set

Heavy Wall Construction • Ground
Glass Single O-ring Joints

(Set Includes Items Listed Below)

➤ Greenburg Smith Impinger Assembly	Qty. 1	Item# 5700
➤ Modified Impinger Assembly	Qty. 3	Item# 5701
➤ 180 Degree Bend	Qty. 3	Item# 5723
➤ Double "L" Adapter	Qty. 1	Item# 5721
➤ #28 S.S. Pinchclamp	Qty. 9	Item# 5773



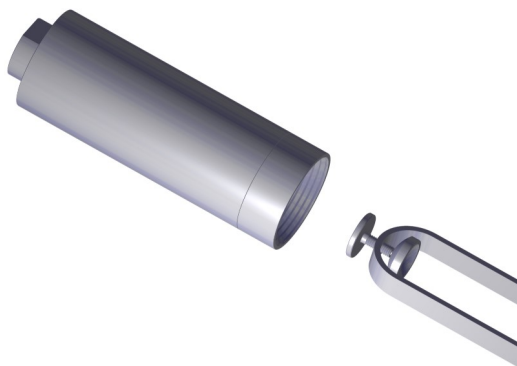
Item# 5512

Mill-17 Glassware Set
(Set Includes Items Listed Below)

➤ 16oz. Square Side Condensate Bottle	Qty. 4	Item# 5775
➤ #8 1/2 2-Hole Stopper With S.S. Tube Stems	Qty. 4	Item# 7100-S
➤ Type "K" Thermocouple	Qty. 1	Item# 0454-06
➤ Gum Rubber Connecting Tube	Qty. 3 ft.	Item# 8545

Filters & Filter Holders

➤ 47 mm S.S. Filter Holder	<i>Item# 7085</i>
➤ 47 mm Glass Fiber Filters (Box of 100)	<i>Item# 1030</i>
➤ 34 mm x 100 mm Alundum Thimble Holder	<i>Item# 7080</i>
➤ 34 mm x 100 mm Alundum Thimble (6 pack)	<i>Item# 7080-AT</i>
➤ High Temp. Alundum Thimble Machined For Spring Adapter (6 pack)	<i>Item# 7080-ATS</i>
➤ Thimble Holder High Temp. Spring Adapter	<i>Item# 7080-S</i>
➤ Thimble Holder Gaskets Large (10 pack)	<i>Item# 7088-L</i>
➤ Thimble Holder Gaskets Small (10 pack)	<i>Item# 7088-S</i>



Method 18

Complete Sampling System

Measurement of Gaseous Organic Compound Emissions by Gas Chromatography



Item# 2100-18

Mill 18 Bag Sampling System

Nema Box W/Positive Seal • Hinged
Clear Polycarbonate Cover

(System Includes Items Listed Below)



➤ Nema Box W/Positive Seal	Item# 9588
➤ 6' Mill-18 S.S. Sampling Probe	Item# 8521-18
➤ Sample Pump W/Flowmeter	Item# 0122
➤ 20' Teflon Tubing	Item# 8580-18
➤ Teflon Midget Impinger	Item# 5700M
➤ 25-Liter Tedlar Bag	Item# 2250-25

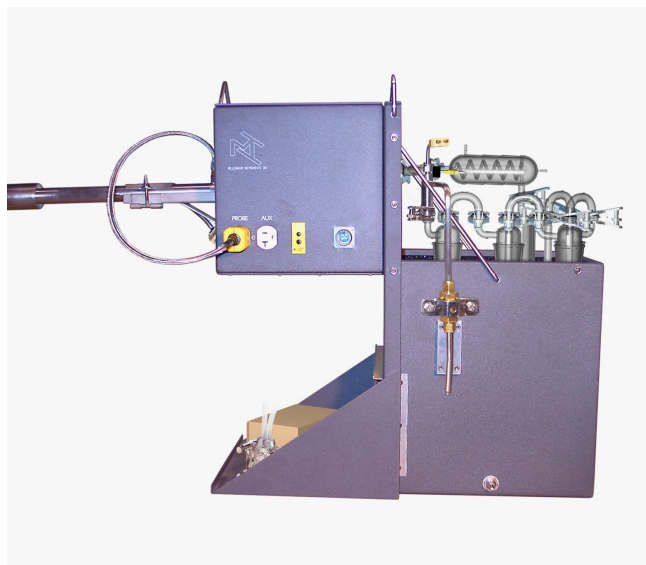
3/8" S.S.
Connection Union

3/8" O.D. S.S.
Sample Tube

Method 23

Complete Sampling Systems

Determination of Polychlorinated Dibenzo-P-Dioxins and Polychlorinated Dibenzofurans from Stationary Sources



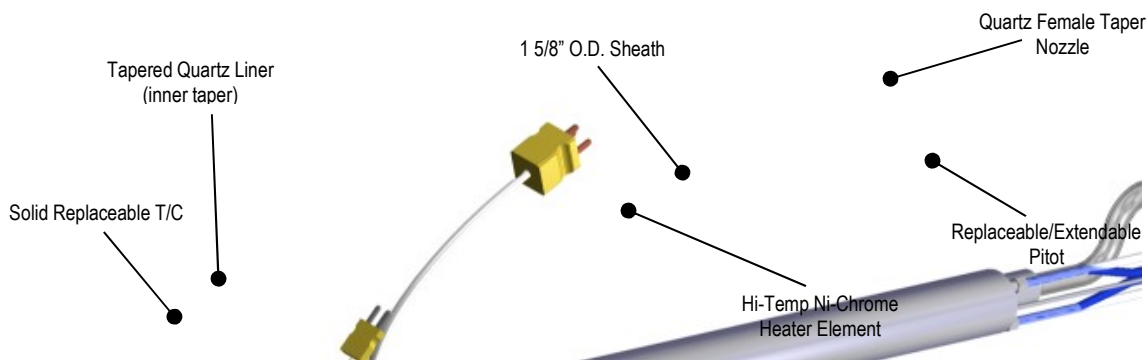
Item# 2100-23

Mill 23 Sampling System

(System includes items listed below)

➤ Mill 5 Control Console	<i>Item# 0120</i>
➤ Mill 5 Sample Console	<i>Item# 0300</i>
➤ 6' S.S. M-23 Probe (tapered borosilicate liner)	<i>Item# 0418-6</i>
➤ 50' Umbilical Cable	<i>Item# 0650-50</i>
➤ Tapered Borosilicate Nozzle Set	<i>Item# 0405-S</i>
➤ Impinger Outlet	<i>Item# 0610</i>
➤ Millennium Modified M-5 Glassware System	<i>Item# 5502DS</i>
➤ 85mm Quartz Fiber Filters (box of 25)	<i>Item# 1035</i>
➤ 10' Probe Rod Kit	<i>Item# 0482-10</i>
➤ S.S. Port Seal Adapter	<i>Item# 8550</i>
➤ Recirculation Pump	<i>Item# 0124</i>

M-23 Probes and Associated Items

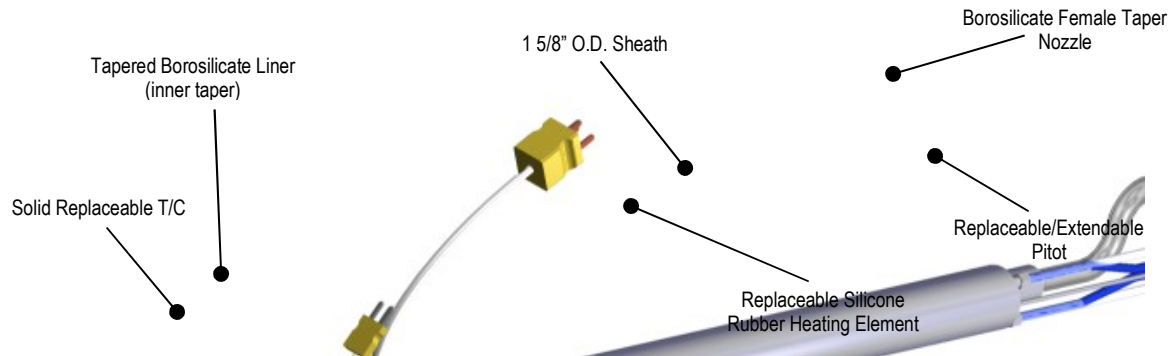


S.S. Construction • 120 V Tube Heating Element • Calibrated “S” Type Pitot • Tapered Quartz Probe Liner w/28 Balljoint and 14/35 Inner Joint • Type “K” Probe & Stack Thermocouple

Complete M-23 Probes With Tapered Quartz Liners

➤ 2' Tapered Quartz M-23 Probe	Item# 0414-2
➤ 3' Tapered Quartz M-23 Probe	Item# 0414-3
➤ 4' Tapered Quartz M-23 Probe	Item# 0414-4
➤ 5' Tapered Quartz M-23 Probe	Item# 0414-5
➤ 6' Tapered Quartz M-23 Probe	Item# 0414-6
➤ 7' Tapered Quartz M-23 Probe	Item# 0414-7
➤ 8' Tapered Quartz M-23 Probe	Item# 0414-8
➤ 9' Tapered Quartz M-23 Probe	Item# 0414-9
➤ 10' Tapered Quartz M-23 Probe	Item# 0414-10
➤ 11' Tapered Quartz M-23 Probe	Item# 0414-11
➤ 12' Tapered Quartz M-23 Probe	Item# 0414-12

Standard lengths available up to 20' call representative for pricing and availability



S.S. Construction • 120 V Tube Heating Element • Calibrated “S” Type Pitot • Tapered Borosilicate Probe Liner w/28 Balljoint and 14/35 Inner Joint • Type “K” Probe & Stack Thermocouple

Complete M-23 Probes With Tapered Borosilicate Liners

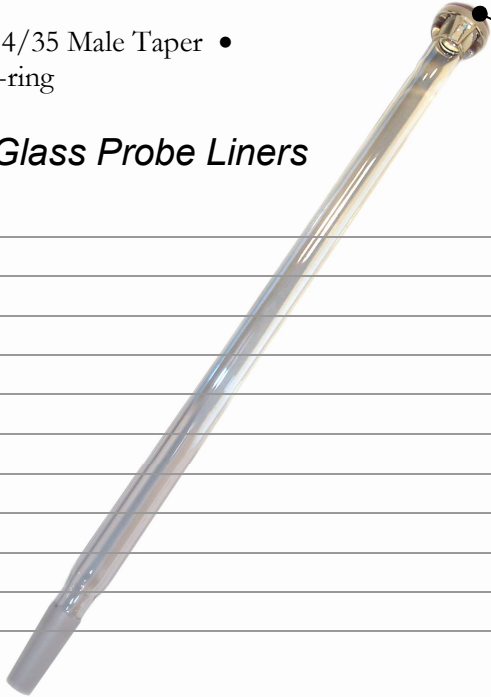
➤ 2' Tapered Borosilicate M-23 Probe	Item# 0418-2
➤ 3' Tapered Borosilicate M-23 Probe	Item# 0418-3
➤ 4' Tapered Borosilicate M-23 Probe	Item# 0418-4
➤ 5' Tapered Borosilicate M-23 Probe	Item# 0418-5
➤ 6' Tapered Borosilicate M-23 Probe	Item# 0418-6
➤ 7' Tapered Borosilicate M-23 Probe	Item# 0418-7
➤ 8' Tapered Borosilicate M-23 Probe	Item# 0418-8
➤ 9' Tapered Borosilicate M-23 Probe	Item# 0418-9
➤ 10' Tapered Borosilicate M-23 Probe	Item# 0418-10
➤ 11' Tapered Borosilicate M-23 Probe	Item# 0418-11
➤ 12' Tapered Borosilicate M-23 Probe	Item# 0418-12

Standard lengths available up to 20' call representative for pricing and availability

Quartz 5/8" O.D. • 14/35 Male Taper •
28/12 Ball Joint w/O-ring

TFE. Coated
Silicone O-ring

Tapered Quartz Glass Probe Liners



➤ 2' Effective length	Item# 0433-2T
➤ 3' Effective length	Item# 0433-3T
➤ 4' Effective length	Item# 0433-4T
➤ 5' Effective length	Item# 0433-5T
➤ 6' Effective length	Item# 0433-6T
➤ 7' Effective length	Item# 0433-7T
➤ 8' Effective length	Item# 0433-8T
➤ 9' Effective length	Item# 0433-9T
➤ 10' Effective length	Item# 0433-10T
➤ 11' Effective length	Item# 0433-11T
➤ 12' Effective length	Item# 0433-12T

Overall length is 1' longer than effective length.

Borosilicate 5/8" O.D. • 14/35 Inner Taper •
28/12 Ball Joint w/O-ring

Tapered Borosilicate Glass Probe Liners

➤ 2' Effective length	Item# 0432-2T
➤ 3' Effective length	Item# 0432-3T
➤ 4' Effective length	Item# 0432-4T
➤ 5' Effective length	Item# 0432-5T
➤ 6' Effective length	Item# 0432-6T
➤ 7' Effective length	Item# 0432-7T
➤ 8' Effective length	Item# 0432-8T
➤ 9' Effective length	Item# 0432-9T
➤ 10' Effective length	Item# 0432-10T
➤ 11' Effective length	Item# 0432-11T
➤ 12' Effective length	Item# 0432-12T

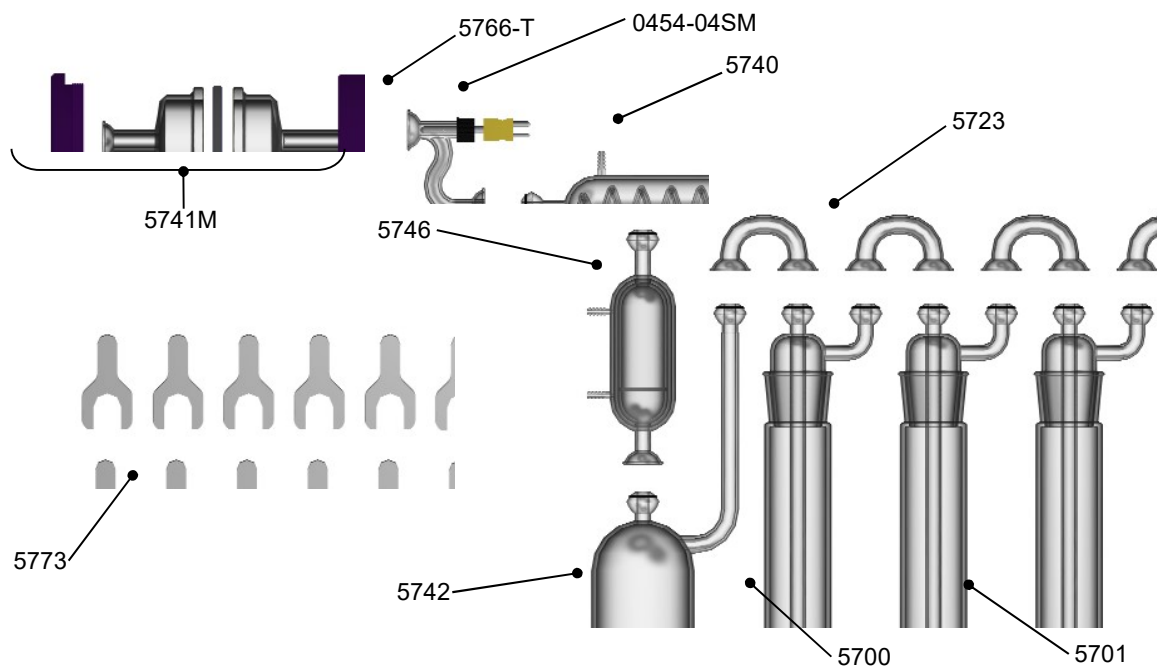
Overall length is 1' longer than effective length.

M-23 Probe Ancillary Items

(Individual Items Listed Below)

➤ Replacement S-Type Pitots	Specifications and pricing shown on page 8
➤ Replacement Stack Thermocouple	Specifications and pricing shown on page 10
➤ Probe Replacement Heaters	Specifications and pricing shown on page 37
➤ 10' Probe Rod Kit	Item# 0482-10
➤ S.S. Port Seal Adapter	Item# 8550

Glassware and Associated Items



Heavy Wall Construction • Ground Glass Single O-ring Joints

Millennium Modified M-5 Glassware Set Item# 5502D

➤ Greenburg Smith Impinger Assembly	Qty. 1	Item# 5700
➤ Modified Impinger Assembly	Qty. 3	Item# 5701
➤ 180 Degree Bend	Qty. 4	Item# 5723
➤ "S" Adapter W/Threaded T/C Connection	Qty. 1	Item# 5766-T
➤ 3" Glass Filter Holder Assembly	Qty. 1	Item# 5741M
➤ MM5 Hybrid Impinger	Qty. 1	Item# 5742
➤ MM5 Coil Condenser	Qty. 1	Item# 5740
➤ #28 S.S. Pinchclamp	Qty. 14	Item# 5773
➤ MM5 Sorbent Trap	Qty. 1	Item# 5746
➤ 4" X 1/4" O.D. Type "K" Thermocouple	Qty. 1	Item# 0454-04SM

Toll Free: 815.675.3225

www.millinst.com

E-mail: millennium@millinst.com

*Millennium Modified M-5 Glassware System**Item# 5502DS*

➤ Greenburg Smith Impinger Assembly	Qty. 3	Item# 5700
➤ Modified Impinger Assembly	Qty. 9	Item# 5701
➤ 180 Degree Bend	Qty. 12	Item# 5723
➤ "S" Adapter W/Threaded T/C Connection	Qty. 3	Item# 5766-T
➤ 3" Glass Filter Holder Assembly	Qty. 3	Item# 5741M
➤ MM5 Hybrid Impinger	Qty. 3	Item# 5742
➤ MM5 Coil Condenser	Qty. 3	Item# 5740
➤ #28 S.S. Pinchclamp	Qty. 42	Item# 5773
➤ MM5 Sorbent Trap	Qty. 3	Item# 5746
➤ 4" X 1/4" O.D. Type "K" Thermocouple	Qty. 3	Item# 0454-04SM
➤ Interior Filter Holder Transport Case	Qty. 1	Item# 5501FC
➤ System Transport Case	Qty. 1	Item# 5501SCD

M-23 Replacement Glassware

(Individual Items Listed Below)

➤ Impinger Outlet	Item# 0610
➤ Greenburg Smith Impinger Assembly	Item# 5700
➤ Impinger Insert	Item# 5700-I
➤ Impinger Bottle	Item# 5700B
➤ Modified Impinger Assembly	Item# 5701
➤ Modified Impinger Insert	Item# 5701-I
➤ 180 Degree Bend	Item# 5723
➤ Cyclone Bypass	Item# 5720
➤ "S" Adapter W/Threaded T/C Connection	Item# 5766-T
➤ "S" Adapter	Item# 5766
➤ 3" Filter Holder	Item# 5741M
➤ 3" Teflon Frit	Item# 5745
➤ 3" Clamp Ring	Item# 5770
➤ 3" Filter Inlet Half	Item# 5741MI
➤ 3" Filter Outlet Half	Item# 5741MO
➤ MM5 Hybrid Impinger	Item# 5742
➤ MM5 Coil Condenser	Item# 5740
➤ MM5 Sorbent Trap	Item# 5746
➤ #28 S.S. Pinchclamp	Item# 5773

M-23 Umbilical Cables and Associated Items

Method 23 Umbilical Cables

Highly Flexible 3/8" ID Gum Rubber Sample Line

- PVC Pitot Lines • 16ga. 5 Cond. Electric Cable •
- 5 Type "K" Extension Wires With Standard Plugs

➤ 25' Umbilical cable	Item# 0650-25
➤ 50' Umbilical cable	Item# 0650-50
➤ 75' Umbilical cable	Item# 0650-75
➤ 100' Umbilical cable	Item# 0650-100

Nozzles and Associated Items



Tapered Quartz Nozzles

14/35 Female Taper

➤ *1/8" Gooseneck	Item# 0404-125
➤ *3/16" Gooseneck	Item# 0404-185
➤ *1/4" Gooseneck	Item# 0404-250
➤ *5/16" Gooseneck	Item# 0404-3125
➤ *3/8" Gooseneck	Item# 0404-375
➤ *7/16" Gooseneck	Item# 0404-4375
➤ *1/2" Gooseneck	Item# 0404-500
➤ 5/8" Gooseneck	Item# 0404-625
➤ 3/4" Gooseneck	Item# 0404-750
➤ Tapered Quartz Nozzle Set (Includes items marked with an *, foam lined carrying case)	Item# 0404-S

Tapered Borosilicate Glass Nozzles

14/35 Female Taper

➤ *1/8" Gooseneck	Item# 0405-125
➤ *3/16" Gooseneck	Item# 0405-185
➤ *1/4" Gooseneck	Item# 0405-250
➤ *5/16" Gooseneck	Item# 0405-3125
➤ *3/8" Gooseneck	Item# 0405-375
➤ *7/16" Gooseneck	Item# 0405-4375
➤ *1/2" Gooseneck	Item# 0405-500
➤ 5/8" Gooseneck	Item# 0405-625
➤ 3/4" Gooseneck	Item# 0405-750
➤ Tapered Borosilicate Nozzle Set (Includes items marked with an *, foam lined carrying case)	Item# 0405-S

Filter Media

Quartz Fiber Filters

Boxes of 25

➤ 85 mm Quartz	Item# 1035
➤ 110 mm Quartz	Item# 1037

Teflon Fiber Filters

Boxes of 25

➤ 85 mm Teflon	Item# 1046
➤ 110 mm Teflon	Item# 1050

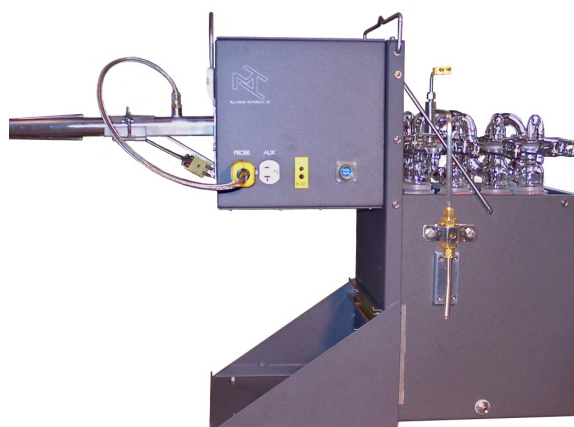
Misc. Items Associated With Method 23

➤ Recirculation Pump	Item# 0124
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Method 29

Gas Sampling Equipment

Determination of Metals Emissions from Stationary Sources

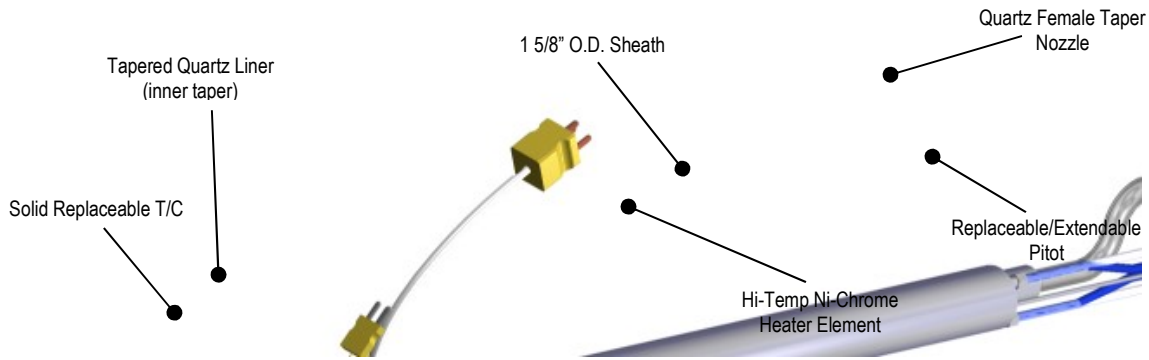


Item# 2100-29

Mill-29 Sampling System (System includes items listed below)

➤ Mill 5 Control Console	Item# 0120
➤ Mill 5 Sample Console Configured For M-29	Item# 0300
➤ 6' S.S. M-29 Probe (tapered borosilicate liner)	Item# 0418-6
➤ 50' Umbilical Cable	Item# 0650-50
➤ Tapered Borosilicate Nozzle Set	Item# 0405-S
➤ Impinger Outlet	Item# 0610
➤ Mill 29 Glassware Set	Item# 5502M
➤ S.S. Port Seal Adapter	Item# 8550
➤ 85mm Glass Fiber Filters (box of 100)	Item# 1034
➤ 10' Teflon Probe Rod Kit	Item# 0482-10
➤ Nozzle Brush Swab	Item# 0400-BS

M-29 Probes and Associated Items

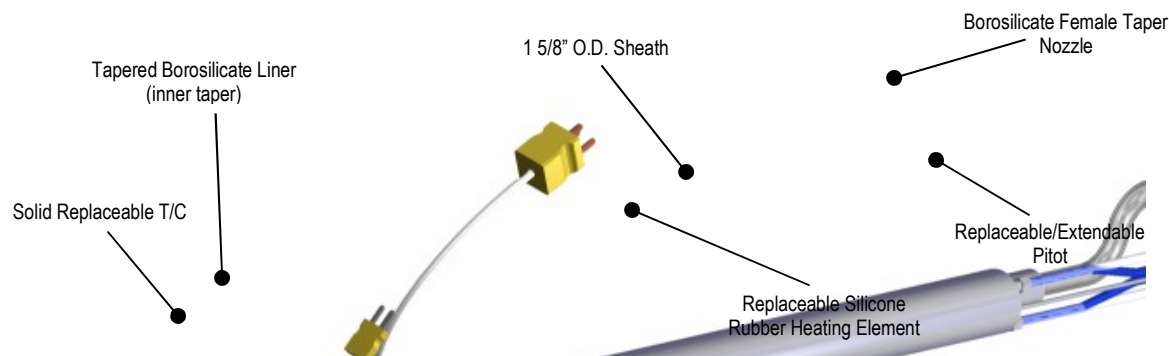


S.S. Construction • 120 V Tube Heating Element • Calibrated “S” Type Pitot • Tapered Quartz Probe Liner w/28 Balljoint and 14/35 Inner Joint • Type “K” Probe & Stack Thermocouple

Complete M-29 Probes With Tapered Quartz Liners

➤ 2' Tapered Quartz M-29 Probe	Item# 0414-2
➤ 3' Tapered Quartz M-29 Probe	Item# 0414-3
➤ 4' Tapered Quartz M-29 Probe	Item# 0414-4
➤ 5' Tapered Quartz M-29 Probe	Item# 0414-5
➤ 6' Tapered Quartz M-29 Probe	Item# 0414-6
➤ 7' Tapered Quartz M-29 Probe	Item# 0414-7
➤ 8' Tapered Quartz M-29 Probe	Item# 0414-8
➤ 9' Tapered Quartz M-29 Probe	Item# 0414-9
➤ 10' Tapered Quartz M-29 Probe	Item# 0414-10
➤ 11' Tapered Quartz M-29 Probe	Item# 0414-11
➤ 12' Tapered Quartz M-29 Probe	Item# 0414-12

Standard lengths available up to 20' call representative for pricing and availability



S.S. Construction • 120 V Tube Heating Element • Calibrated “S” Type Pitot • Tapered Borosilicate Probe Liner w/28 Balljoint and 14/35 Inner Joint • Type “K” Probe & Stack Thermocouple

Complete M-29 Probes With Tapered Borosilicate Liners

➤ 2' Tapered Borosilicate M-29 Probe	Item# 0418-2
➤ 3' Tapered Borosilicate M-29 Probe	Item# 0418-3
➤ 4' Tapered Borosilicate M-29 Probe	Item# 0418-4
➤ 5' Tapered Borosilicate M-29 Probe	Item# 0418-5
➤ 6' Tapered Borosilicate M-29 Probe	Item# 0418-6
➤ 7' Tapered Borosilicate M-29 Probe	Item# 0418-7
➤ 8' Tapered Borosilicate M-29 Probe	Item# 0418-8
➤ 9' Tapered Borosilicate M-29 Probe	Item# 0418-9
➤ 10' Tapered Borosilicate M-29 Probe	Item# 0418-10
➤ 11' Tapered Borosilicate M-29 Probe	Item# 0418-11
➤ 12' Tapered Borosilicate M-29 Probe	Item# 0418-12

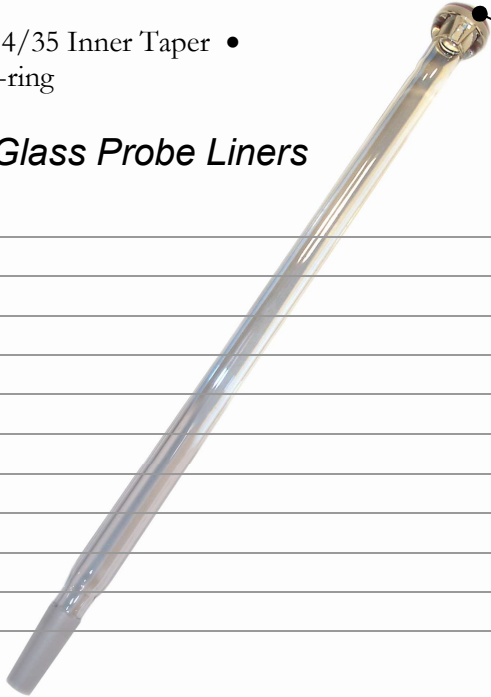
Standard lengths available up to 20' call representative for pricing and availability

For customers that prefer probes that use a Teflon union for nozzle attachment refer to page 28 “*Complete M-5 Probes With Borosilicate Liners*”.

Quartz 5/8" O.D. • 14/35 Inner Taper •
28/12 Ball Joint w/O-ring

TFE. Coated
Silicone O-ring

Tapered Quartz Glass Probe Liners



➤ 2' Effective length	Item# 0433-2T
➤ 3' Effective length	Item# 0433-3T
➤ 4' Effective length	Item# 0433-4T
➤ 5' Effective length	Item# 0433-5T
➤ 6' Effective length	Item# 0433-6T
➤ 7' Effective length	Item# 0433-7T
➤ 8' Effective length	Item# 0433-8T
➤ 9' Effective length	Item# 0433-9T
➤ 10' Effective length	Item# 0433-10T
➤ 11' Effective length	Item# 0433-11T
➤ 12' Effective length	Item# 0433-12T

Overall length is 1' longer than effective length.

Borosilicate 5/8" O.D. • 14/35 Inner Taper •
28/12 Ball Joint w/O-ring

Tapered Borosilicate Glass Probe Liners

➤ 2' Effective length	Item# 0432-2T
➤ 3' Effective length	Item# 0432-3T
➤ 4' Effective length	Item# 0432-4T
➤ 5' Effective length	Item# 0432-5T
➤ 6' Effective length	Item# 0432-6T
➤ 7' Effective length	Item# 0432-7T
➤ 8' Effective length	Item# 0432-8T
➤ 9' Effective length	Item# 0432-9T
➤ 10' Effective length	Item# 0432-10T
➤ 11' Effective length	Item# 0432-11T
➤ 12' Effective length	Item# 0432-12T

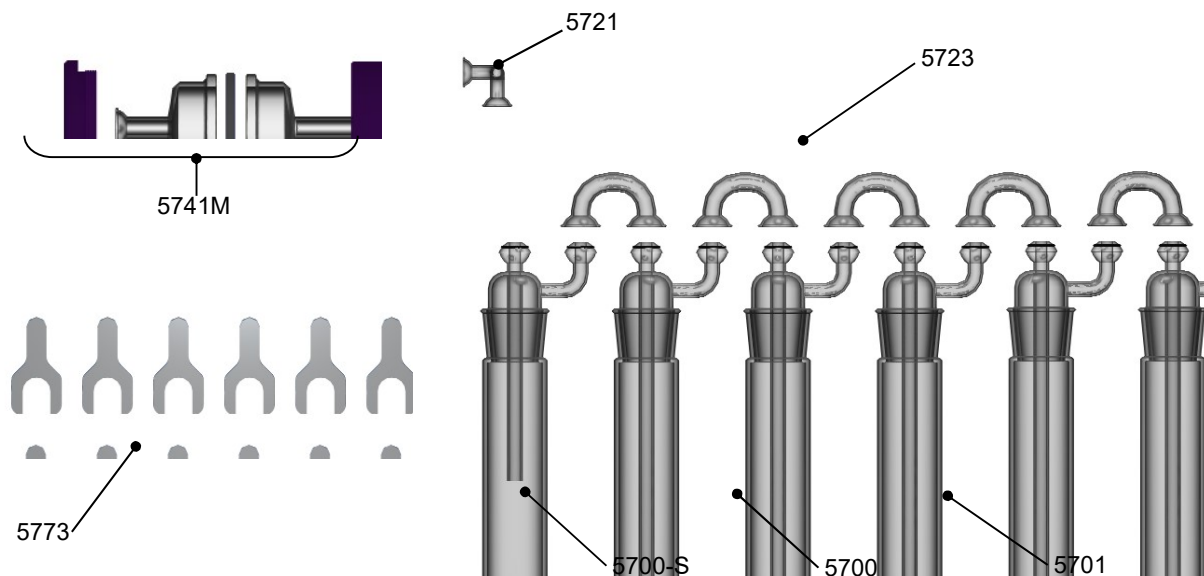
Overall length is 1' longer than effective length.

M-29 Probe Ancillary Items

(Individual Items Listed Below)

➤ Replacement S-Type Pitots	Specifications and pricing shown on page 8
➤ Replacement Stack Thermocouple	Specifications and pricing shown on page 10
➤ Probe Replacement Heaters	Specifications and pricing shown on page 37
➤ 10' Probe Rod Kit	Item# 0482-10
➤ S.S. Port Seal Adapter	Item# 8550

Glassware and Associated Items



Heavy Wall Construction • Ground Glass Single O-ring Joints

Millennium M-29 Glassware Set

Item# 5502M

➤ Greenburg Smith Impinger Assembly	Qty. 1	Item# 5700
➤ Modified Impinger Assembly	Qty. 5	Item# 5701
➤ Modified Impinger Assembly (short)	Qty. 1	Item# 5701-S
➤ 180 Degree Bend	Qty. 6	Item# 5723
➤ Double "L" Adapter	Qty. 1	Item# 5721
➤ 3" Glass Filter Holder Assembly	Qty. 1	Item# 5741M
➤ #28 S.S. Pinchclamp	Qty. 16	Item# 5773

M-29 Replacement Glassware

(Individual Items Listed Below)

➤ Greenburg Smith Impinger Assembly	Item# 5700
➤ Impinger Insert	Item# 5700-I
➤ Impinger Bottle	Item# 5700-B
➤ Modified Impinger Assembly	Item# 5701
➤ Modified Impinger Insert	Item# 5701-I
➤ Modified Impinger Insert (short)	Item# 5701-SI
➤ Modified Impinger Assembly (short)	Item# 5701-S
➤ 180 Degree Bend	Item# 5723
➤ Double "L"	Item# 5721
➤ 3" Glass Filter Holder Assembly	Item# 5741M
➤ 3" Teflon Frit	Item# 5745
➤ 3" Clamp Ring	Item# 5770
➤ 3" Filter Inlet Half	Item# 5741-MI
➤ 3" Filter Outlet Half	Item# 5741-MO
➤ #28 S.S. Pinchclamp	Item# 5773
➤ Impinger Outlet	Item# 0610

M-29 Umbilical Cables and Associated Items

Method 29 Umbilical Cables

Highly Flexible 3/8" ID Gum Rubber Sample Line

- PVC Pitot Lines
- 16ga. 5 Cond. Electric Cable
- 5 Type "K" Extension Wires With Standard Plugs

➤ 25' Umbilical cable	Item# 0650-25
➤ 50' Umbilical cable	Item# 0650-50
➤ 75' Umbilical cable	Item# 0650-75
➤ 100' Umbilical cable	Item# 0650-100

Nozzles and Associated Items



Tapered Quartz Nozzles

14/35 Female Taper

➤ *1/8" Gooseneck	Item# 0404-125
➤ *3/16" Gooseneck	Item# 0404-185
➤ *1/4" Gooseneck	Item# 0404-250
➤ *5/16" Gooseneck	Item# 0404-3125
➤ *3/8" Gooseneck	Item# 0404-375
➤ *7/16" Gooseneck	Item# 0404-4375
➤ *1/2" Gooseneck	Item# 0404-500
➤ 5/8" Gooseneck	Item# 0404-625
➤ 3/4" Gooseneck	Item# 0404-750
➤ Tapered Quartz Nozzle Set (Includes items marked with an *, foam lined carrying case)	Item# 0404-S

Tapered Borosilicate Glass Nozzles

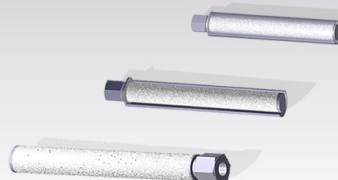
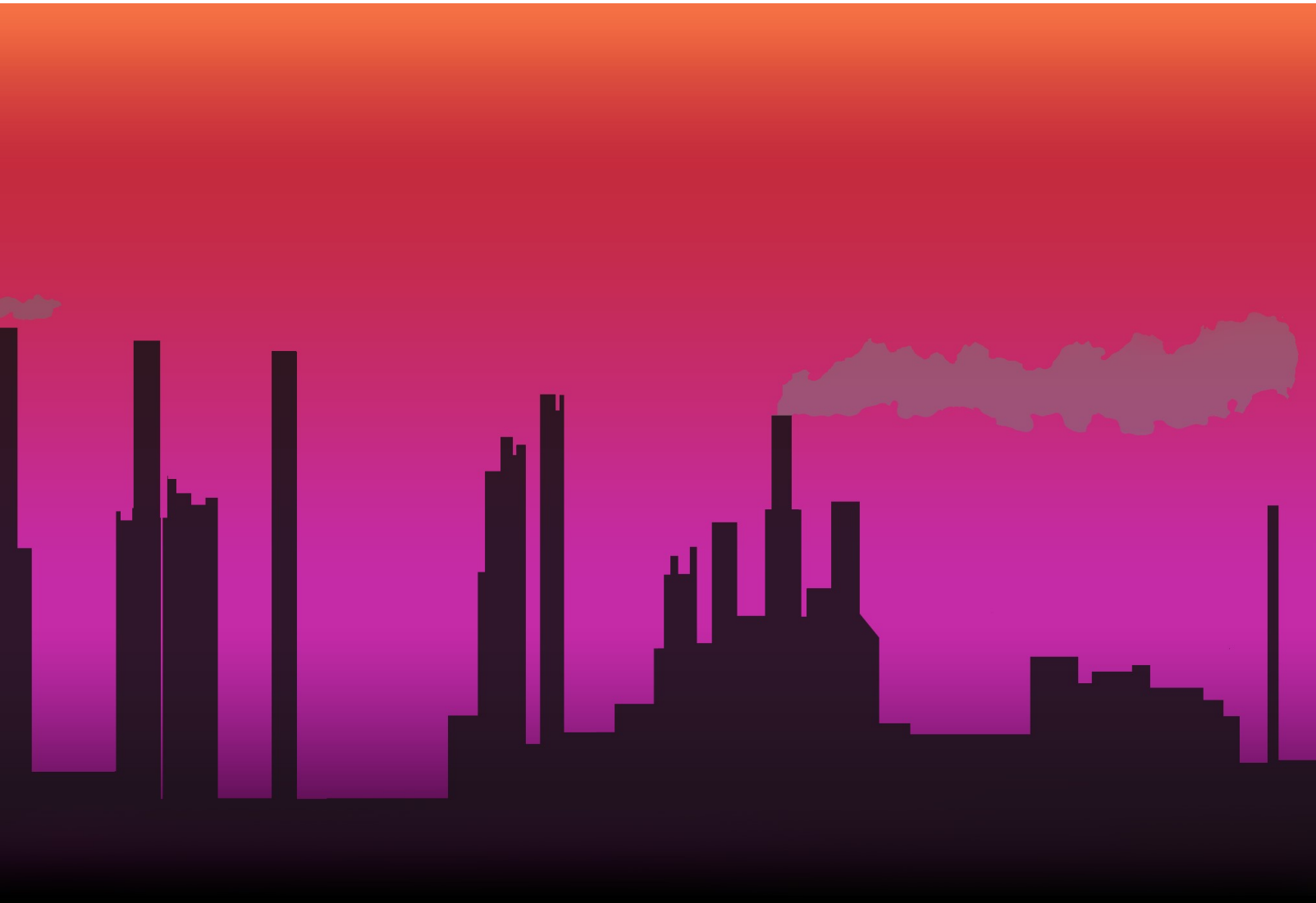
14/35 Female Taper

➤ *1/8" Gooseneck	Item# 0405-125
➤ *3/16" Gooseneck	Item# 0405-185
➤ *1/4" Gooseneck	Item# 0405-250
➤ *5/16" Gooseneck	Item# 0405-3125
➤ *3/8" Gooseneck	Item# 0405-375
➤ *7/16" Gooseneck	Item# 0405-4375
➤ *1/2" Gooseneck	Item# 0405-500
➤ 5/8" Gooseneck	Item# 0405-625
➤ 3/4" Gooseneck	Item# 0405-750
➤ Tapered Borosilicate Nozzle Set (Includes items marked with an *, foam lined carrying case)	Item# 0405-S

Section 2

CEM Equipment and Supplies





Fritted Particulate Filters

Frits are available in many standard materials and configurations and can be manufactured custom to virtually any specification.

Sintered Frits

316 SS • 3/4" O.D. • 20 Micron



➤ 6" Frit with 1/4" Capplug	Item# 3208.250
➤ 6" Frit with 3/8" Capplug	Item# 3208.375
➤ 6" Frit with 5/8" Capplug	Item# 3208.625

Inconel Sintered Frits

Alloy 600 • 3/4" O.D. • 20 Micron

➤ 6" Frit with 1/4" Capplug	Item# 3208.250-I
➤ 6" Frit with 3/8" Capplug	Item# 3208.375-I
➤ 6" Frit with 5/8" Capplug	Item# 3208.625-I

Sintered Frits W/Particulate Half Shield

316 SS • 3/4" O.D. • 20 Micron



➤ 6" Frit with 1/4" Capplug	Item# 3220.250
➤ 6" Frit with 3/8" Capplug	Item# 3220.375
➤ 6" Frit with 5/8" Capplug	Item# 3220.625

Sintered Frits W/Particulate Full Shield

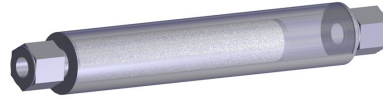
316 SS • 3/4" O.D. • 20 Micron



➤ 6" Frit with 1/4" Capplug	Item# 3222.250
➤ 6" Frit with 3/8" Capplug	Item# 3222.375
➤ 6" Frit with 5/8" Capplug	Item# 3222.625

Inline Sintered Frits

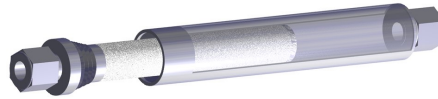
316 SS • 5/8" O.D. • 20 Micron • 1" O.D. Tube
With Non Replaceable Element



➤ 6" Frit with 1/4" Capplug	Item# 3231.250
➤ 6" Frit with 3/8" Capplug	Item# 3231.375
➤ 6" Frit with 5/8" Capplug	Item# 3231.625

Inline Sintered Frits

316 SS • 5/8" O.D. • 20 Micron • 1" O.D. Tube
With Replaceable Element



➤ 6" Frit with 1/4" Capplug	Item# 3232.250
➤ 6" Frit with 3/8" Capplug	Item# 3232.375
➤ 6" Frit with 5/8" Capplug	Item# 3232.625

Inline Frit Accessories

➤ Frit Tube Heater Self Limiting	Item# 9185
➤ Frit Tube Heater Non Self Limiting	Item# 9186
➤ Digital Temperature Controller	Item# 0370

MISP 2001

The Misp 2001 CEM Probe is designed with the versatility of a single probe that can be used in a permanently mounted application or can just as easily be used in portable applications. The idea behind this probe is simplicity; easy to use and maintain this probe design is a welcome addition to any new or existing CEM System.



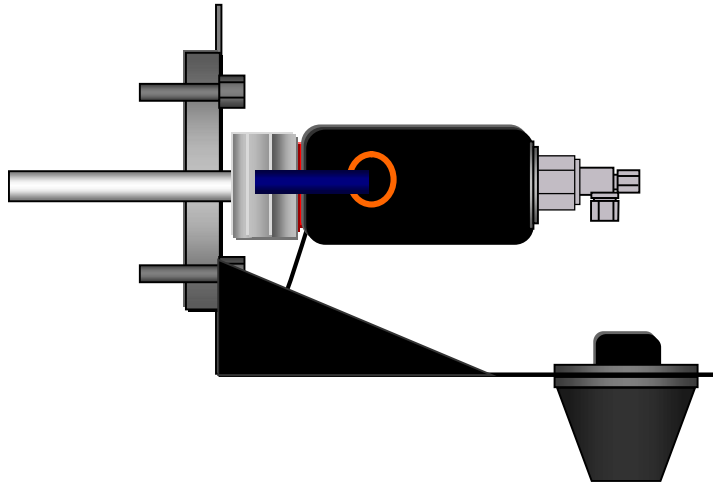
MISP 2001 Shown W/Heated Probe And Optional Probe And Filter Controllers.

Item# 0480

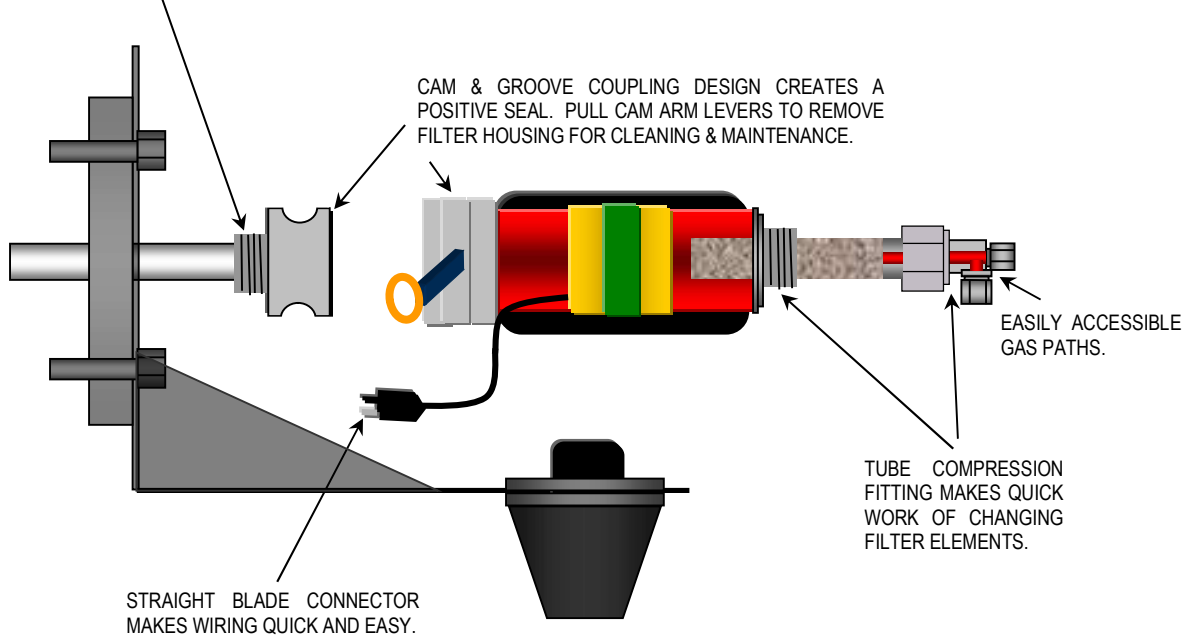
MISP 2001 Heated CEM Filter

4 ' Unheated Probe

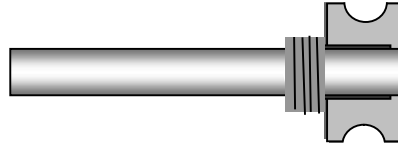
➤ MISP 2001 W/Heated 4' Probe	Item# add (-1)
➤ MISP 2001 W/Blowback	Item# add (-2)
➤ MISP 2001 W/Out Aluminum Enclosure	Item# add (-0)
➤ Probe And Filter Controller (fiberglass nema enclosure)	Item# add (-C)

Maintenance Made Easy

PROBE FEATURES A 2" NPT THAT THREADS INTO THE FACE OF THE FLANGE ALLOWING PROBE REMOVAL WITHOUT REMOVING FLANGE FROM SAMPLE PORT.



Probes

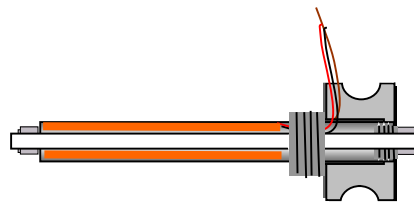


MIS P 2001 Unheated Replacement Probe

316 SS • 3/4" Pipe • W/Grooved Quick Coupler •
Available from 6' – 10'

➤ MIS P 2001 Unheated Replacement Probe 6' – 1' oal	Item# 0492-1
➤ Additional Lengths up to 10'	Item# add (- "oal ft. ")

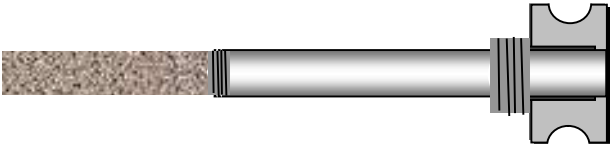
Note: Add oal in feet to Item# 0492 to obtain part# for additional lengths (10' oal = Item# 0492-10)



MIS P 2001 Heated Replacement Probe

316 SS O.D. Probe Sheath • 2" Pipe • W/Grooved Quick
Coupler • 110V High Temp. Cable Heater • Available from 2' –
10' • Type "K" T/C • 3/8" O.D. Heated Sample Tube

➤ MIS P 2001 Heated Replacement Probe 2'	Item# 0492-2H
--	---------------



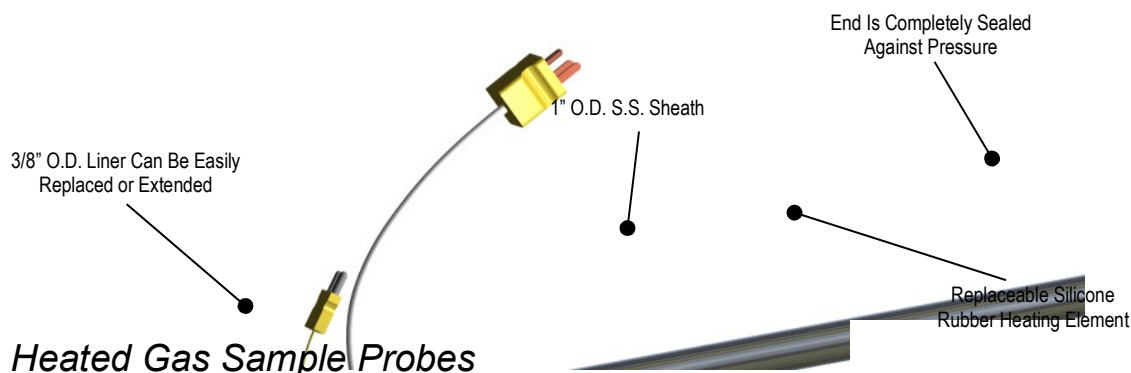
MISP 2001 In Stack Fritted Filters

316 SS • 3/4" O.D. • 20 Micron • 6" Length

➤ Fritted Filter for use with Unheated Probe and Extensions	Item# 3240.375
➤ Fritted Filter for use with Heated Probe	Item# 3208.375

CEM Gas Sampling Probes

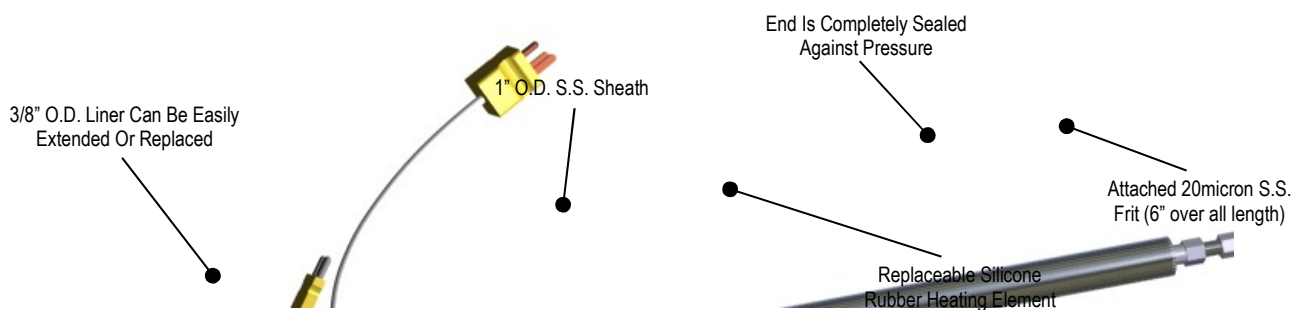
Many versions of this style of CEM Probe are available some common configurations are shown below.



Heated Gas Sample Probes

316 S.S. Construction • 120 V Heating Element • 1" O.D. Sheath

➤ 4' Heated Gas Sample Probe	Item# 0490-4
➤ 6' Heated Gas Sample Probe	Item# 0490-6
➤ 8' Heated Gas Sample Probe	Item# 0490-8
➤ 10' Heated Gas Sample Probe	Item# 0490-10

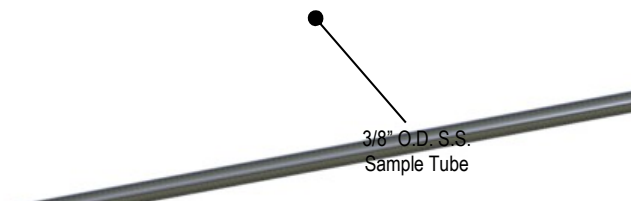


Heated Gas Sample Probes W/Attached Frit

316 S.S. Construction • 120 V Heating Element •
1" O.D. Sheath • 6" 20 Micron Attached Frit

➤ 4' Heated Gas Sample Probe W/Attached Frit	Item# 0490-4F
➤ 6' Heated Gas Sample Probe W/Attached Frit	Item# 0490-6F
➤ 8' Heated Gas Sample Probe W/Attached Frit	Item# 0490-8F
➤ 10' Heated Gas Sample Probe W/Attached Frit	Item# 0490-10F
➤ Other Frit Options Available	Specifications and pricing shown starting on page 95

3/8" S.S.
Calibration Tee



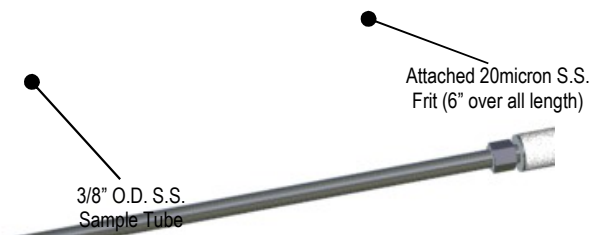
3/8" O.D. S.S.
Sample Tube

Unheated Gas Sample Probes

316 S.S. Construction • 3/8" O.D. Tubing • 3/8" Tee

➤ 4' Unheated Gas Sample Probe	Item# 8526P-4
➤ 6' Unheated Gas Sample Probe	Item# 8526P-6
➤ 8' Unheated Gas Sample Probe	Item# 8526P-8
➤ 10' Unheated Gas Sample Probe	Item# 8526P-10

3/8" S.S.
Calibration Tee



3/8" O.D. S.S.
Sample Tube

Attached 20micron S.S.
Frit (6" over all length)

Unheated Gas Sample Probes W/Attached Frits

316 S.S. Construction • 6" 20 Micron Attached Frit

➤ 4' Unheated Gas Sample Probe W/Attached Frit	Item# 8526PF-4
➤ 6' Unheated Gas Sample Probe W/Attached Frit	Item# 8526PF-6
➤ 8' Unheated Gas Sample Probe W/Attached Frit	Item# 8526PF-8
➤ 10' Unheated Gas Sample Probe W/Attached Frit	Item# 8526PF-10
➤ Other Frit Options Available	Specifications and pricing shown starting on page 95

Heated Sample Lines

At Millennium Instruments Inc. We Stock Heated Sample Lines Ready for Delivery on a Moments Notice



Millennium Sample Line

350°F Operating Temp. @ 0°F Ambient Temp. • 110 V/AC • 3/8" Heated Teflon Line •
1/4" Unheated Cal Line • Dual Insulated • S.S. Tube End Connections

➤ 25' OAL Length Heated Sample Line	Item# 0375-25
➤ 50' OAL Length Heated Sample Line	Item# 0375-50
➤ 100' OAL Length Heated Sample Line	Item# 0375-100

Made To Order Sample Lines

Many Configurations Available

➤ Additional TFE Tubing	➤ Electric Messenger Wires
➤ Replaceable Sample Tube	➤ Hazard Proof
➤ T/C Messenger Wires	

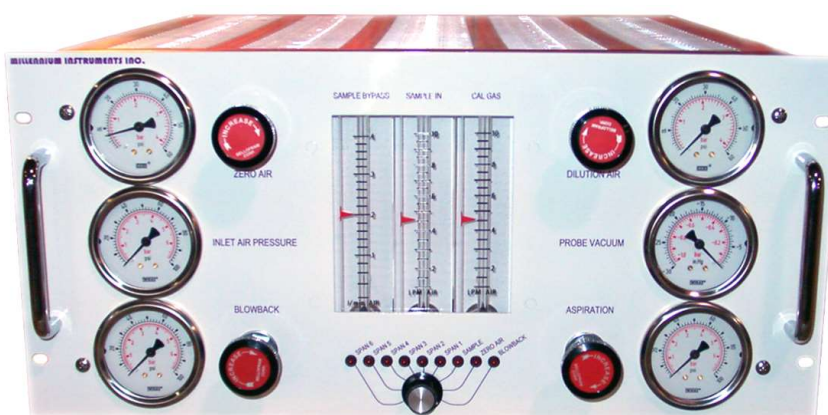
Call With Your Specific Needs

Heated Sample Line Accessories

➤ Digital Temperature Controller	Item# 0370
➤ HCM Rack-Mountable Digital Temperature Controller	Item# 1257
➤ HSLM Heated Sample Line Manifold	Item# 1260
➤ Strain Relief 1.62" – 2.00" Line Dia.	Item# 9585
➤ Double Eye Line Grip 1.75" – 1.99" Line Dia.	Item# 9586

Dilution Probe Controller

The Dilution Probe Controller is a fully functional dilution style probe controller housed in a modular 19" rack mount chassis. Complete with flowmeters, pressure gauges, and precision regulators the DPC provides precise control of the pressurized air delivered to the probe. Up to seven separate (one zero) cal gasses can be conveniently diverted to the probe for calibration. The calibration gasses can be selected manually from the front panel or controlled remotely via 24 vdc inputs. Status outputs are also provided using internal dry relay contacts to monitor the calibration function of the controller. Blowback and Aspiration air are also regulated and controlled using the DPC.



Item# 1250

Specifications:

Supply Voltage:	110 V/AC
Indication:	Discrete LED (red)
Signal Voltage:	24 V/DC (Control)
Cal Gas Pressure:	60 psi (max)
Blow Back Pressure:	90 psi (max)
Connections:	1/4" tube compression
Signal Connection:	16 pin phoenix
Status Indicators:	Normally open dry relay contacts

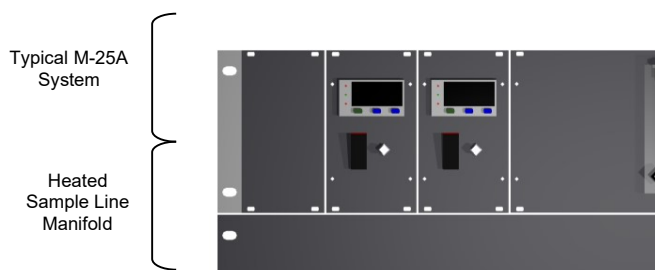


Rear Panel DPC

The Flexi-Panel system is a series of modules specifically designed to compliment new and existing CEM systems.

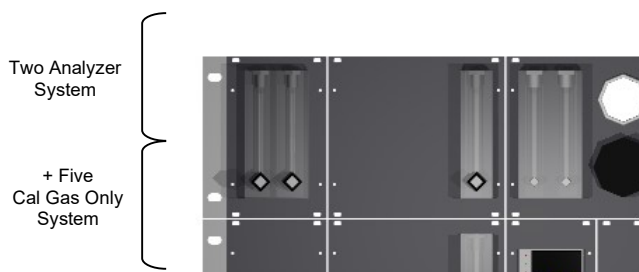
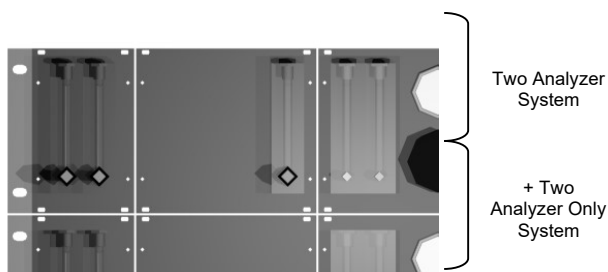
The modules can be mixed and matched to create more cost effective systems. Modules can be housed in 19" rack mount chassis', cutout panels, or portable enclosures, and can be expanded simply by adding more modules.

Typical Systems Using Various Modules



Typically set up for M-25A, this system has 5 separate cal gas input connections plus separate probe and heated sample line temperature control modules. Using the HSLM along side the M-25A system allows you the ability to sample up to four separate locations timesharing one analyzer.

A four analyzer system with five cal gas inputs. This system could be used with two sets of analyzers using the same cal gasses testing two separate locations simultaneously.



A two analyzer system with ten cal gas inputs. This system can be used to calibrate two analyzers with a wider range of cal gasses.

The Automated Valve Control Panel provides the control signals used in a complete calibration and sample gas manifold system. Also providing a regulated sample, back purge, and sample bypass the AVCP is the heart of a multiple analyzer system. The AVCP can be remotely controlled via 24V/DC control signals or RS-232 and can be used to control up to a 6 analyzer system. The AVCP comes with vent and sample flowmeters used to measure total regulated sample flow and the amount of gas being vented past the backpressure regulator.



Item# 1255

AVCP Automated Valve Control Panel



The Sample Gas Valve Panel functions as a dual sample/calibration gas diverter when connected to a proper control module. The SGVP is used to select between calibration and sample modes and it should be noted that the SGVP will allow for one analyzer to be calibrated while the other is in sample mode. Regulated sample and cal gas connections are made at the rear of the module. Bulkhead mount flow meters control flow levels to the analyzers.

Item# 1255SGVP

SGVP Sample Gas Valve Panel

The Cal Gas Valve Panel functions as a cal gas selector when connected to any of our control modules. The CGVP is used to divert the desired cal gas to either the analyzer or possibly the sample probe tip for calibration. Gas cylinder connections are made at the rear of the module while a bulkhead mounted flowmeter controls cal gas flow levels.



Item# 1255CGVP

CGVP Cal Gas Valve Panel



Item# 1255YCEP

VCEP Valve Control Expansion Panel

The Valve Control Expansion Panel expands the control of a two analyzer system by two more analyzers. Used along side an additional CGVP and SGVP module the VCEP completes a four analyzer system. Note that the VCEP must be connected to an AVCP to function properly.

The Manual Control Module provides a more economical way to calibrate a single analyzer (commonly used with M-25A) than the AVCP. The MCM can be controlled remotely via 24V/DC control signals when the unit is switched to auto mode.



Item# 1256

MCM Manual Control Module



The Heater Controller Module provides an accurate temperature control for heated items such as heated sample lines, probes, or various types of ovens. The HCM is set up with a type "K" temperature probe input and a 3-prong receptacle plug is used for connection to the heated element. Other multi-pin receptacles are available.

Item# 1257

HCM Heater Control Module

The Temperature Pressure Display Module uses two separate displays to measure temperature and differential pressure. The TPDM comes with a 4-20ma output for both the pressure and temperature readings.



Item# 1258

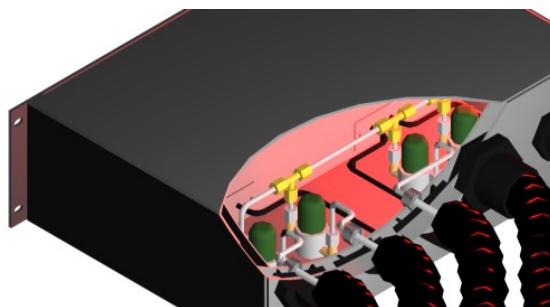
TPDM Temperature Pressure Display Module

HSLM Heated Sample Line Manifold

Item# 1260



The heated sample line manifold can be used to supply a heated sample from up to four locations to a single analyzer or a gas conditioning system. The HSLM module comes complete with a selector switch and individual heater controllers for the manifold oven and the attached 5' sample line. Similar to the other gas selector modules offered by Millennium Instruments Inc. the selector switch can be set to auto-mode and this module can be controlled remotely. A purge connection that can be connected to an unheated pump is provided as a means to purge unused sample lines for quicker response times.



Attached 5' heated line

Input Sample lines (not included)

HSLM cutout view showing heated manifold and attached sample lines

Specifications:

Supply Voltage:	110 V/AC
Connections:	3/8" tube union
Display:	4 digit LED



HSLM shown in rack-mount system along side four HCM's (heater control modules).

Total Hydrocarbon Analyzers



200 Series

Heated Methane, Ethane, Residual, Total Hydrocarbon Analyzers

The Series 200 line of GC/FID hydrocarbon analyzers can be used to continuously measure Methane, Ethane, Residual and Total Hydrocarbons. The Series 200 uses two independent Flame Ionization Detectors, FID's, one to measure Total Hydrocarbons and the other to measure Methane, Ethane and residual. A sample is fed to the analyzer via an internal heated sample pump. After the sample reaches the analyzer, a portion is trapped and fed through a column, which separates Methane and Ethane. The column is then reversed and the remaining sample is analyzed and called Residual. The column is then back-flushed to ensure contaminate free operation.

The Series 200 uses Flame Ionization Detectors, FID's. The detectors, all sample lines, and anything else that comes in contact with the sample are made either of Stainless Steel or Teflon and maintained in a temperature controlled oven to prevent condensation, and to provide reliable performance in the analysis of concentrations of wide varieties of hydrocarbons in gaseous mixtures and in ambient air.



Model – 20/2

Dual Channel Heated Total Hydrocarbon Analyzer

The Model – 20/2 is a microprocessor based dual heated total hydrocarbon analyzer for high accuracy, sensitivity, and stability. The model – 20/2 is designed to continuously measure two points.

The model – 20/2 uses two independent flame ionization detector (FID's). Both detectors and all sample lines are maintained in a controlled heated oven to prevent condensation, and to provide reliable performance in the analysis of concentrations of a wide variety of hydrocarbons in gaseous mixtures and in ambient air.

Applications Include:

Process Monitoring – continuous monitoring and alarm or control of: Process gas streams utilizing organic solvents, crude oil, and other chemicals containing hydrocarbons.

Efficiency Monitoring – monitoring effluent of V.O.C. reduction equipment for environmental compliance. Efficiency control of incinerators (thermal or catalytic), scrubbers, carbon absorbers, and other abatement equipment.

Safety Monitoring – L.E.L. (lower explosive limit) – monitoring and/or control of ovens/dryers, fugitive emissions monitoring, personnel work area monitoring, leak detection of process equipment or solvent storage areas.

Emission Analyzers

**Testo 350**

(Standard Kits listed below)

	<i>Item#</i>	Kit # 3501	Kit # 3502	Kit # 3503	Kit # 3504
300 XXL Analyzer	5630352	☐			
350 M Analyzer	5630351		☐		
350 XL Analyzer	5630350			☐	☐
O ₂ , CO, CO rinse		☐	☐	☐	☐
NO, NO ₂				☐	☐
Integrated Printer		☐	☐	☐	☐
Auto Air Purge				☐	
Integrated Gas Cooler			☐	☐	☐
NO	4403935		☐		
CxHy	4403929			☐	☐
Low Nox	4403929				☐
CO Dilution	4400555				☐
Comm. Hand	5630354	☐			
Comm. Hand	5630353		☐	☐	☐
6' Cable	4490042	☐	☐	☐	☐
Rechargeable Battery	5150067	☐	☐	☐	☐
13" Probe	6007451	☐	☐	☐	☐
Touch Screen	4400559				☐
Carry Strap	4402545	☐	☐	☐	☐
NO ₂ /SO ₂ Hose	4407442			☐	☐
ComSoft3	5540841			☐	☐

	<i>Item#</i>	Kit # 3501	Kit # 3502	Kit # 3503	Kit # 3504
Printer Paper (6 Rolls)	5540569	○	○	○	○
Particulate Filters (20 Pack)	5543381	○	○	○	○
H2O Filters (10 Pack)	5543380		○	○	○
Kit Case	5160351	○	○	○	○
Cal Certification		○	○	○	○

➤ Gas Upgrade Modules

SO2 Module	<i>Item#</i> 4403927
CO Low	<i>Item#</i> 4403925
NO Low	<i>Item#</i> 4403928
H2S Module	<i>Item#</i> 4403930
ChHy Module	<i>Item#</i> 4403929

➤ Probes & Hoses

Hi Temp Probe	<i>Item#</i> 4407437
Probe W/Particulate Filter	<i>Item#</i> 4407435
16" Hose	<i>Item#</i> 4407443
Non-Heat Adapter	<i>Item#</i> 6007911
Probe 2200 °F	<i>Item#</i> 6007803

➤ Options & Accessories

Trigger Inlet	<i>Item#</i> 4403932
Wall Mount Box	<i>Item#</i> 5540230
Fresh Air Valve	<i>Item#</i> 4400557

Analyzers

*Item# 3001***Testo 300 M Basic Kit**

(Kit includes items listed below)

➤ Combustion Analyzer O ₂ , CO ₂ , CO	<i>Item# 632.0300</i>
➤ Battery Charger	<i>Item# 554.0053</i>
➤ Compact Flue Gas Probe	<i>Item# 600.9532</i>
➤ Aluminum Case (Instrument)	<i>Item# 516.0306</i>
➤ Transport Case (Kit)	<i>Item# 516.0302</i>
➤ Spare Inline Filters (10 Pack)	<i>Item# 554.3371</i>

Testo 300 M Optional Items

➤ High Temperature Probe 12" long, 1832 °F Max	<i>Item# 600.8532</i>
➤ Infrared Printer	<i>Item# 554.0545</i>



Item# 3251

Testo 325-1 Kit

(Kit includes items listed below)

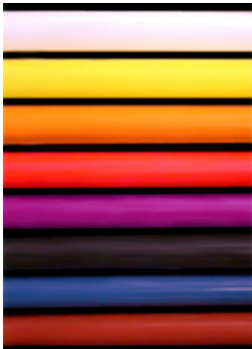
➤ Analyzer 325-1 O ₂ , CO ₂ , CO and Draft	<i>Item# 563.0320</i>
➤ 12" Flue Gas Probe	<i>Item# 600.9542</i>
➤ Soft Case (Instrument)	<i>Item# 516.2571</i>
➤ Transport Case (Kit)	<i>Item# 516.3250</i>
➤ Spare Inline Filters (10 Pack)	<i>Item# 554.0040</i>

Testo 325-1 Optional Items

➤ Infrared Printer	<i>Item# 554.0545</i>
➤ Mini Temperature Probe 2.5"	<i>Item# 600.9798</i>
➤ Hose Connection Set	<i>Item# 554.0315</i>

Tubing

Tubing



Teflon Tubing

Heavy Wall Construction • Available in Lengths up to 100'

Teflon Tubing Is Available In Many Standard Colors And With A Little Longer Lead Time Can Be Made To Any Color Specification.

➤ 1/8" O.D. Heavy Wall Teflon Tubing (TFE)	Item# 8581
➤ 1/4" O.D. Heavy Wall Teflon Tubing (TFE)	Item# 8580
➤ 3/8" O.D. Heavy Wall Teflon Tubing (TFE)	Item# 8582
➤ 1/2" O.D. Heavy Wall Teflon Tubing (TFE)	Item# 8583
➤ 5/8" O.D. Heavy Wall Teflon Tubing (TFE)	Item# 8584
➤ 1/4" O.D. Heavy Wall Teflon Tubing (FEP-clear tubing)	Item# 8580-FEP

Note: Add - # to specify color: Black (-BK), Red (-R), Yellow (-Y), Orange (-O), Blue (-BL), Green (-G), White (-W), Clear (-CL).



Item# 8590

5/16" O.D. Polyvinyl Tubing

Sold in Length up to 100' • Price is Per Foot

Pumps



Item# 0122

Sampling Pump W/O – 5 LPM Flowmeter

Housed in Carrying Case W/Handle •
Teflon Lined Wetted Parts

Item# 0126

Condensate Removal Pump W/Check Valve

Magnetic Drive • Lightweight Construction • Check
Valve to Prevent Back Flushing

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