

Nozzle Accessories

Ferrules



Single Ferrules

Part #	Description
10F-GR	5/8 Inch Graphite, Single Ferrule, High Temp
NTG-10F	5/8 Inch Glass Filled Single Ferrule
NT-10F	5/8 Inch TFE Single Ferrule

Front/Back Ferrules

Part #	Description
10F-GR	5/8 Inch Graphite, Single Ferrule, High Temp
10FF-S	5/8 Inch Stainless Steel Front Ferrule
10FB-S	5/8 Inch Stainless Steel Back Ferrule
NI-10BF	5/8 Inch Alloy 600 Back Ferrule
NI-10FF	5/8 Inch Alloy 600 Front Ferrule

Unions



Part #	Description
N-10UB	5/8 Inch Stainless Steel Union, Bored Out, with Nuts and Ferrules
N-10US	5/8 Inch Stainless Steel Union, Bored Straight Through, with Nuts and Ferrules
N-10UBT	5/8 Inch Stainless Steel Union, Bored Out, Teflon Coated, No Nuts or Ferrules
N-10UST	5/8 Inch Stainless Steel Union, Bored Straight Through, PFA/PTFE Coated No Nuts or Ferrules
NI-10UB	5/8 Inch Alloy 600 Tube Union, Bored Out, with Nuts and Ferrules
NI-10US	5/8 Inch Alloy 600 Tube Union, Bored Straight Through, with Nuts and Ferrules
NT-10U	5/8 Inch TFE Tube Union with Nuts and Ferrules
NTG-10UNN	5/8 Inch Glass Filled Teflon Union Body, No Nuts or Ferrules
NTG-10U	5/8 inch Glass-Filled PFA/PTFE Union Complete with Nuts and Ferrules

Seals



Part #	Description
O-113V	5/8 Inch Viton O-Ring to Seal Liner or Glass Nozzle (Use with N-10BR)
N-10BR	5/8 Inch Thrust Backer Ring for 5/8 Inch O-Ring Seal, Stainless Steel
NP-1/16	Packaging Braid, 1/16 inch Braided Glass, (3 foot piece), Max Temperature 1200°F
NP-1/16H	Packaging Braid, 1/16 inch Ceramic Braid, Ultra-High-Temp, Max Temperature 2650°F

Tube Nuts



Part #	Description
N-10	5/8 Inch Stainless Steel Tube Nut
NI-10N	5/8 Inch Alloy 600 Tube Nut
NTG-10	5/8 Inch NTG Nut



Nozzle Brush Set (NB-SET)
Includes 1 each of 3 popular sizes in a convenient carrying tube.

- NB-3 3/16" Diameter
- NB-5 5/8" Diameter
- NB-8 1/2" Diameter



PTFE Nozzle Brush (NBT-1/2)
Constructed of pure PTFE featuring a 1/8" diameter shaft with 1/2" long soft PTFE bristles

- NBT-1/2 1/2" Diameter

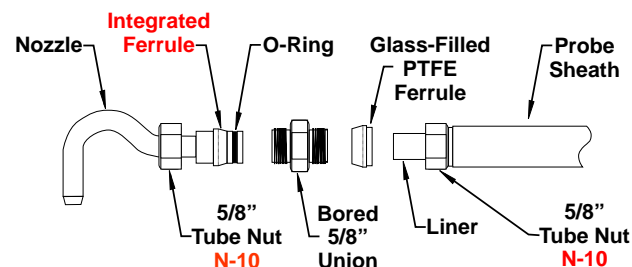


Vinyl Caps

Part #	Description
VPC-4-16	Vinyl Cap, Size 1/4" ID, 1" Height Fits Nozzle Sizes 4-6
VPC-6-16	Vinyl Cap, Size 3/8" ID, 1" Height Fits Nozzle Sizes 7-10
VPC-8-16	Vinyl Cap, Size 1/2" ID, 1" Height Fits Nozzle Sizes 11-14
VPC-10-16	Vinyl Cap, Size 5/8" ID, 1" Height Fits Nozzle Size 16

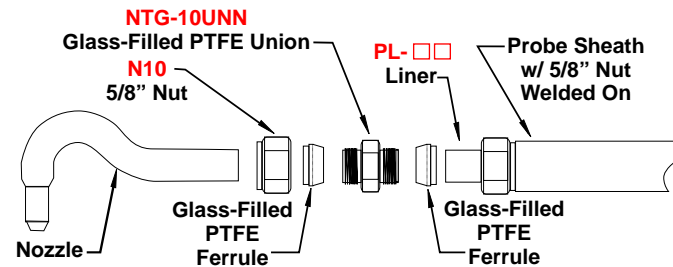
NOTE: Colors May Vary

Nozzle Installation for Steel Alloys



Stainless Steel Nozzle with Integrated Ferrule
Note: Bored Union must be used when using the O-Ring

Nozzle Installation for Glass and Quartz



Nozzles for Isokinetic Sampling

Apex Instruments offers Button-Hook Nozzles in a multitude of materials and sizes. Isokinetic sampling requires the nozzle size to match the stack gas velocity. The material required is dependent upon stack temperature and sampling method.

The most popular nozzles are available in our standard set. We also offer a large and oversize nozzle sets.

The most popular nozzles are constructed from seamless 316 stainless steel and can be coated with PTFE/FEP duplex or SilcoNert 2000®. Other nozzle materials include Borosilicate Glass, Alloy 600 and Quartz. Standard sampling nozzles are 4 inches long with a 5/8" OD shank. The stainless steel and alloy 600 nozzles have an integrated ferrule and o-ring to minimize leaks.

Alternative lengths and shank diameters are available upon request.



N□-SET-S

The Standard Nozzle Set (S) Includes the Following:

Qty	Part #	Description
1	N□-4	1/8 inch
1	N□-5	5/32 inch
1	N□-6	3/16 inch
1	N□-7	7/32 inch
1	N□-8	1/4 inch
1	N□-9	9/32 inch
1	N□-10	5/16 inch
3	N-10	Nut, 5/8 Tube, Stainless Steel
3	NTG-10F	5/8 inch Glass-Filled PFA/PTFE Ferrules (Glass and Quartz Only)
21	O-014V	O-Ring, Viton, (for Nozzles with Integrated Ferrule)
1	SH-NZ	Nozzle Case with Foam Lining (holds 7 nozzles)

N□-SET-L

The Large Nozzle Set (L) Includes the Following:

Qty	Part #	Nominal
1	N□-11	11/32 inch
1	N□-12	3/8 inch
1	N□-13	13/32 inch
1	N□-14	7/16 inch
1	N□-15	15/32 inch
1	N□-16	1/2 inch
1	N□-17	17/32 inch
3	N-10	Nut, 5/8 Tube, Stainless Steel (one extra nut on #16 Stainless Steel/Alloy Nozzle)
3	NTG-10F	5/8 inch Glass-Filled PFA/PTFE Ferrules (Glass and Quartz Only)
21	O-014V	O-Ring, Viton, (for Nozzles with Integrated Ferrule)
1	SH-NZ	Nozzle Case with Foam Lining (holds 7 nozzles)

N□-SET-□

Material

- G = Glass
- Q = Quartz
- S = Stainless Steel
- I = Alloy 600
- ST = Stainless Steel, PTFE/FEP
- SL = Stainless Steel, Silco

Nozzle Sizes

- S = Sizes 4 through 10
- L = Sizes 11 through 17

Recommended Maximum Temperature

Material	Maximum Temperature
Stainless Steel	650°C (1200°F)
PFA/PTFE Fitting	177°C (350°F)
Borosilicate Glass	480°C (900°F)
Alloy 600	980°C (1800°F)
Quartz	900°C (1650°F)
Viton O-Rings	260°C (500°F)
Graphite Ferrules	930°C (1800°F)
Glass-Filled Teflon	260°C (500°F)*

*Intermittent up to +600°F

Nozzle Options

To meet your special needs we offer a variety of individual nozzles in different sizes and materials up to 1 inch in diameter.

Please contact us for availability and pricing on special order nozzles.

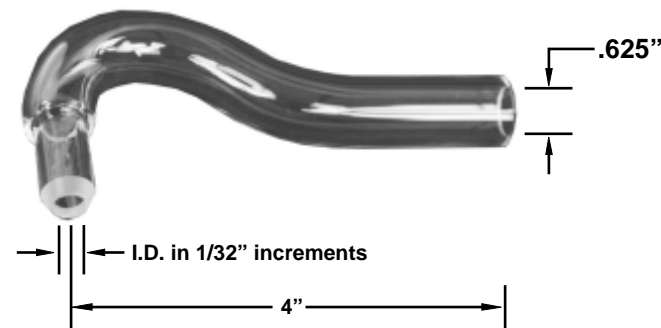


Dual Probe w/ Nozzles Installed

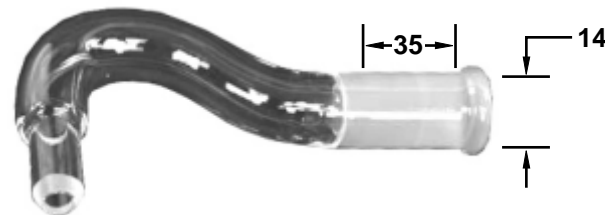


Nozzle w/ Machined Ferrule

Note: (P/N: N10UB) Bored Union is required when using nozzles with an O-ring



Glass/Quartz Nozzle



14/35 Tapered Glass/Quartz Nozzle

Threaded Nozzle Set (N□-TH-SET)

Features the larger ID nozzles for low stack gas velocity and a Button-Hook Nozzle Blank (N□-THB) with a tapered fitting. The set includes 7 Stainless Steel Nozzle Tips which thread onto the Nozzle Blank.



N□-TH-SET

Sizes include:

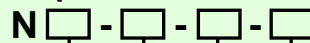
Qty	Part #	Nominal ID (Inches)	Decimal	MM
1	N□-TH20	5/8"	.625"	
1	N□-TH22	11/16"	.688"	17.4mm
1	N□-TH24	3/4"	.750"	19.1mm
1	N□-TH26	13/16"	.813"	20.6mm
1	N□-TH28	7/8"	.875"	22.2mm
1	N□-TH30	15/16"	.938"	23.8mm
1	N□-TH32	1"	1.000"	25.4mm
2	N□-THB	5/8" Threaded Nozzle Blank		
2	N-10	5/8" Stainless Steel Tube Nut		
21	O-114V	O-ring, Viton		
1	SH-NZT	Transport Case		

Recommended Maximum Temperature

Material	Maximum Temperature
Stainless Steel	650°C (1200°F)
PFA/PTFE Fitting	177°C (350°F)
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Alloy 600	980°C (1800°F)
Quartz	900°C (1650°F)
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Graphite Ferrules	930°C (1800°F)
Glass-Filled Teflon	260°C (500°F)*

*Intermittent up to +600°F

Standard Size Nozzle Options



Nozzle Material

G = Glass
Q = Quartz
S = Stainless Steel
I = Alloy 600

Coating

T = PTFE/FEP Duplex (for Stainless Steel Only)
L = Silco Coated (for Stainless Steel Only)

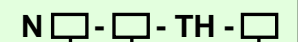
Nozzle Size

	Metal / Alloy			Glass / Quartz		
	Inch	Decimal	MM	Inch	Decimal	MM
4	1/8	.13	3.2	1/8	.13	3.2
5	5/32	.16	4.0	5/32	.15	4.0
6	3/16	.19	4.8	3/16	.18	4.8
7	7/32	.22	5.6	7/32	.21	5.3
8	1/4	.25	6.4	1/4	.25	6.4
9	9/32	.28	7.1	9/32	.28	7.1
10	5/16	.31	8.0	5/16	.31	7.9
11	11/32	.34	8.7	11/32	.34	8.7
12	3/8	.38	9.5	3/8	.38	9.5
13	13/32	.41	10.3	13/32	.41	10.3
14	7/16	.44	11.1	7/16	.44	11.1
15	15/32	.47	11.9	15/32	.47	11.7
16	1/2	.50	12.7	1/2	.50	12.7
17	17/32	.53	13.5	17/32	.53	13.5
18	9/16	.56	14.3	9/16	.56	14.2

Options

T = Taper (Glass or Quartz Nozzle with 14/35 Taper)

Threaded Oversize Nozzle Options



Nozzle Material

S = Stainless Steel
I = Alloy 600

Coating

T = PTFE/FEP Duplex (for Stainless Steel Only)
L = Silco Coated (for Stainless Steel Only)

Nozzle Size

Threaded Oversized Stainless Steel Nozzle Size

	Inch	Decimal	MM
20	5/8	.63	16.0
22	11/16	.69	17.5
24	3/4	.75	19.0
26	13/16	.81	20.6