Venting Needles

High Precision Sample Handling

Increased Performance

- More accurate pipetting
- High corrosion resistance
- Autoclavable
- Piercing of septa or thicker materials
- Prevents cross-contamination

Greater Flexibility

- Multiple point styles
- Variety of connection hubs
- Different needle lengths & gauges
- OEM customization

Faster Liquid Processing

- Self-venting design allows pressure compensation
- Aspirate more than 50µL in one injection*
- Process more samples in shorter time

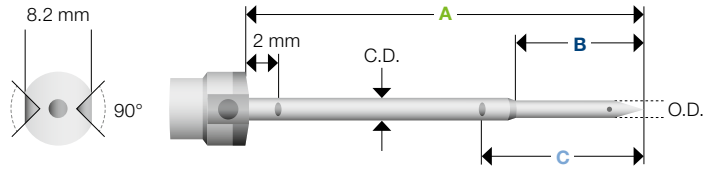
**from a 2 mL vial*

Hamilton venting needles, made of high grade stainless steel, are ideally suited for a wide range of applications. Various lengths, point styles, and connections are available to perfectly match the needs of laboratory equipment manufacturers. Hamilton venting needles improve accuracy and precision of sample handling. Enhanced corrosion resistance and the highest precision manufacturing make them an ideal candidate for pharmaceutical or clinical diagnostic equipment.

HAMILTON®

OEM Needle Configuration

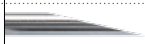
Easily choose the diameter, length, point style, and hub of your needle by using the number coding shown below. The reference number incorporates all the necessary information to manufacture the needle according to your requirements. Dimensions are in metric therefore please take the I.D. gauge conversion column into consideration. All needles are manufactured of AISI316L.



210600 (Basic Number)

Code	O.D. Outer Diameter	I.D. Inner Diameter	C.D. Coaxial Diameter	Approximate Gauge of I.D.
01	0.50 mm	0.15 mm	1.40 mm	30
02	0.50 mm	0.25 mm	1.40 mm	25
03	1.00 mm	0.20 mm	1.80 mm	27
04	1.00 mm	0.30 mm	1.80 mm	24
05	1.00 mm	0.40 mm	1.80 mm	22
06	1.00 mm	0.50 mm	1.80 mm	21
07	1.00 mm	0.70 mm	1.80 mm	19
08	1.60 mm	0.51 mm	2.50 mm	21
09	1.60 mm	0.71 mm	2.50 mm	19
10	1.60 mm	0.79 mm	2.50 mm	near to 18
11	1.60 mm	1.06 mm	2.50 mm	17
12	1.60 mm	1.20 mm	2.50 mm	16
13	2.00 mm	0.50 mm	3.00 mm	21
14	2.00 mm	0.61 mm	3.00 mm	20
15	2.00 mm	1.00 mm	3.00 mm	near to 17
16	2.00 mm	1.20 mm	3.00 mm	16
17	2.00 mm	1.60 mm	3.00 mm	14

Code	A
X X X	O.D. > Ø 0.50 = 20 - 180 mm / Ø 1.00 = 25 - 180 mm / Ø 1.60 = 25 - 180 mm / Ø 2.0 = 30 - 180 mm

Code	Point Style	
0		Point Style AS
4		Point Style 4
5		Point Style 5

Code	Hub	
1		TLL-Female
2		TLL-Male
3		C-Female (¼”-28 UNF)
4		C-Male (¼”-28 UNF)

Code	B
X X	O.D. Ø 0.50 = 05 - 17 mm
	O.D. Ø 1.00 = 10 - 30 mm
	O.D. Ø 1.60 = 10 - 60 mm
	O.D. Ø 2.00 = 15 - 60 mm

Code	C
X X X	Min. dimension = B + 3 mm
	Max. dimension = A - 12 mm

210600 – ← **Reference Number**

Example: **210600-03-100-5-2-20-030**

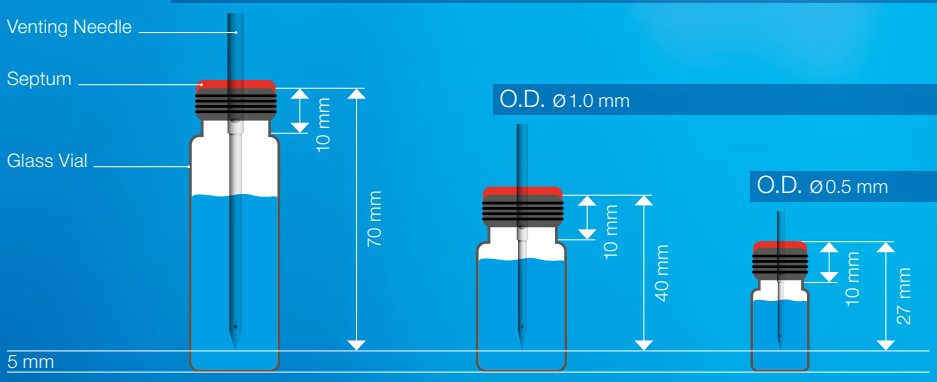
This example part number results in a venting needle with O.D. = 1.0 mm, I.D. = 0.2 mm, A = 100 mm, point style 5, TLL-Male hub, B = 20 mm, C = 30 mm

Needle Point Style

Point Style	Description	Application
AS	Conical, non-coring designed to withstand multiple injections	Instrumentation for multiple or extensive piercing steps
4	Sharp 10-12° beveled needle	Piercing of thicker materials or where septum damage is accepted
5	Conical with side port for penetration without coring	Applications prone to needle clogging; causes minimal septum damage

Septum Piercing

	Recommended Needle Length (A)	Recommended Vial Dimensions
O.D. Ø2.0 mm or Ø1.6 mm	102 mm (= 4 inch)	22 x 75 mm
O.D. Ø1.0 mm	76 mm (= 3 inch)	22 x 45 mm
O.D. Ø0.5 mm	51 mm (= 2 inch)	7 x 40 mm or 12 x 32 mm



Catalog Part Numbers

Hamilton provides a wide range of pre-configured needle dimensions which meet most customer requirements with shorter delivery time.

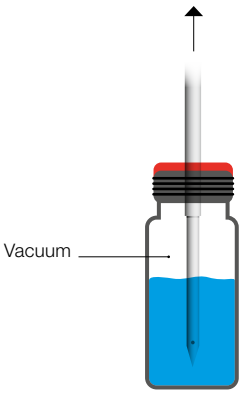
Part Number	Description	O.D. mm	I.D. mm	C.D. mm	A mm	PST	Hub	B mm	C mm
210540	NDL VENT (0.5/51/5) TLL-F	0.50	0.25	1.40	51	5	TLL-Female	17	20
210541	NDL VENT (1.0/76/5) TLL-F	1.00	0.70	1.80	76	5	TLL-Female	30	33
210542	NDL VENT (1.6/102/5) TLL-F	1.60	1.20	2.50	102	5	TLL-Female	60	63
210543	NDL VENT (2.0/102/5) TLL-F	2.00	1.60	3.00	102	5	TLL-Female	60	63
210544	NDL VENT (0.5/51/5) TLL-M	0.50	0.25	1.40	51	5	TLL-Male	17	20
210545	NDL VENT (1.0/76/5) TLL-M	1.00	0.70	1.80	76	5	TLL-Male	30	33
210546	NDL VENT (1.6/102/5) TLL-M	1.60	1.20	2.50	102	5	TLL-Male	60	63
210547	NDL VENT (2.0/102/5) TLL-M	2.00	1.60	3.00	102	5	TLL-Male	60	63
210548	NDL VENT (0.5/51/5) C-F	0.50	0.25	1.40	51	5	C-Female	17	20
210549	NDL VENT (1.0/76/5) C-F	1.00	0.70	1.80	76	5	C-Female	30	33
210550	NDL VENT (1.6/102/5) C-F	1.60	1.20	2.50	102	5	C-Female	60	63
210551	NDL VENT (2.0/102/5) C-F	2.00	1.60	3.00	102	5	C-Female	60	63
210552	NDL VENT (0.5/51/5) C-M	0.50	0.25	1.40	51	5	C-Male	17	20
210553	NDL VENT (1.0/76/5) C-M	1.00	0.70	1.80	76	5	C-Male	30	33
210554	NDL VENT (1.6/102/5) C-M	1.60	1.20	2.50	102	5	C-Male	60	63
210555	NDL VENT (2.0/102/5) C-M	2.00	1.60	3.00	102	5	C-Male	60	63

Pressure Compensation

Precise dispensing and aspirating from a closed vessel requires the instrument designer to address the over and under-pressurization that arises.

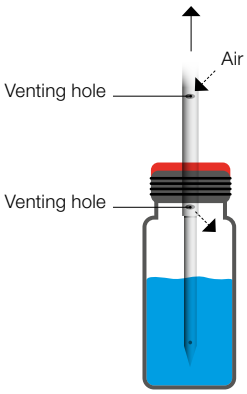
Hamilton has addressed these concerns with a customizable offering of standard and make-to-order venting needles. Below is an example illustrating the risks of aspirating or dispensing into a vessel closed with a septa. This is only one example as probes can be used to pierce a wide range of different materials depending on application.

Sample Aspiration



Conventional Needle

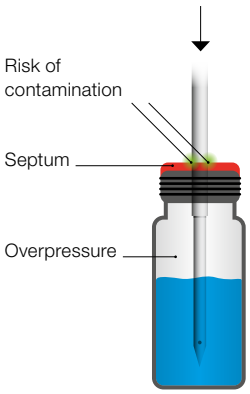
Aspiration of sample continuously decreases the pressure inside of the vial. Large aspiration volumes could generate excessive vacuum and lead to inaccurate aspiration.



Venting Needle

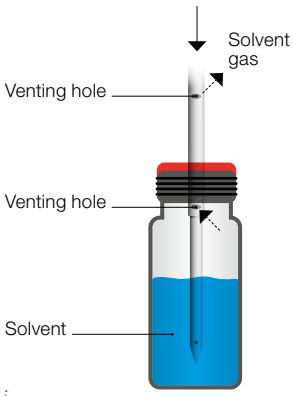
A venting needle allows for the vacuum pressure to equalize during aspiration ensuring accurate sample handling.

Sample Dispensing



Conventional Needle

Dispensing of liquid into a sealed vessel without venting leads to a build up of pressure and the possibility of unwanted venting and contamination from between the needle and septum.

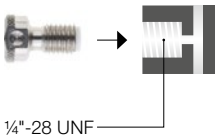


Venting Needle

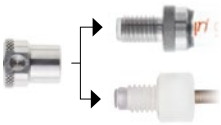
While using a venting needle, the pressure build up resulting from dispensing into a closed vessel is eliminated and so is the risk of contamination.

Connection Capability Examples

Distribution manifold



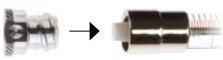
Syringe with C-connection



Tubing with C-connection

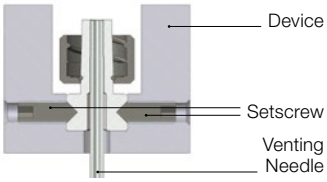
Tubing with TLL-connection

Syringe with TLL-connection



Easy Mounting

Designed for easy and reliable assembly



For more information on venting needles and other Hamilton OEM Components please visit

www.hamiltoncompany.com/OEM

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