

Hamilton Selection Guide

Needles



Quickly Find the Needle You Need

The Anatomy of a Needle



The **Needle Hub** is attached to the needle cannula and is used to connect the needle to a syringe, tube, or fitting

The **Needle Cannula** will be defined by **gauge** and **length**

The opposite end of the needle is shaped into a **Needle Point Style** that is appropriate for the application

1



2



3

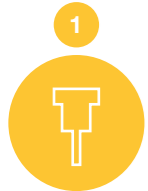


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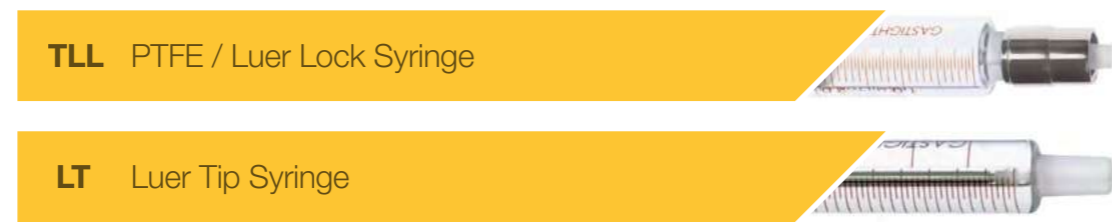
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Choosing the Appropriate Hub



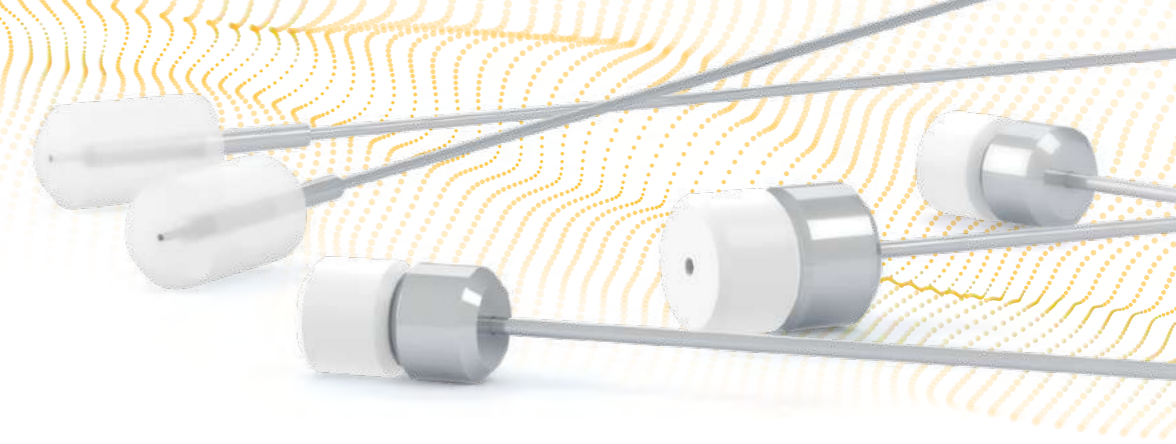
Luer Lock Needle Hubs

Designed to fit any standard Luer, Luer Lock syringe or Luer Lock termination.



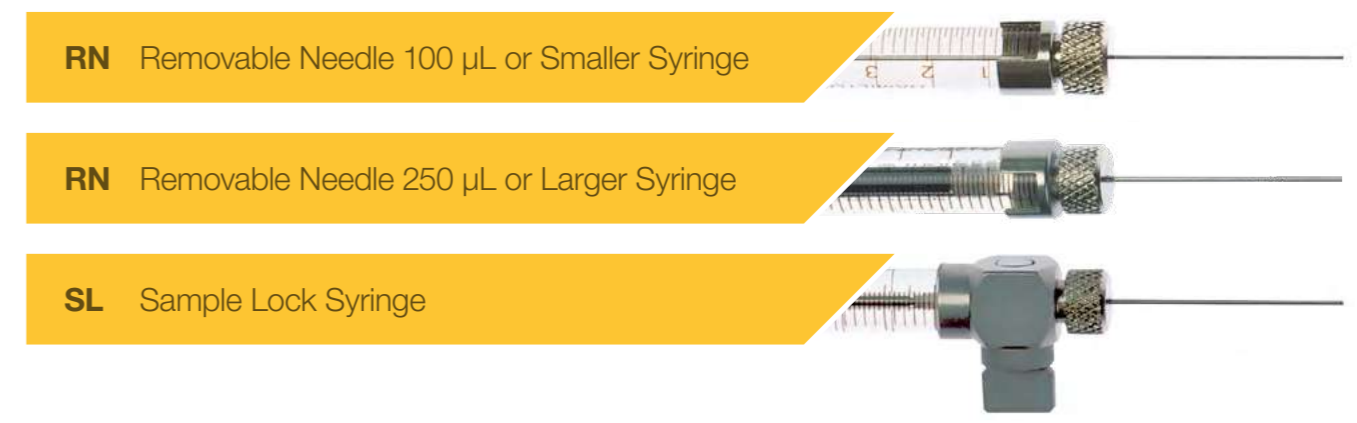
	NEEDLE HUB STYLE	COMPATIBILITY	NEEDLE GAUGE
METAL HUB NEEDLE N NEEDLE		PTFE Luer Lock (TLL) Syringes 25 μ L to 2 L	33 – 10 gauge
KEL-F HUB NEEDLE KF NEEDLE		PTFE Luer Lock (TLL) Syringes 25 μ L to 2 L Luer Tip (LT) Syringes 10 μ L to 10 mL	31 – 10 gauge
VENTING TLL FEMALE NEEDLE		PTFE Luer Lock (TLL) Syringes 25 μ L to 2 L	* / **
VENTING TLL MALE NEEDLE		PTFE Luer Lock (TLL) Syringes 25 μ L to 2 L	* / **
PEEK TLL NEEDLE		PTFE Luer Lock (TLL) Syringes 25 μ L to 2 L Luer Tip (LT) Syringes 10 μ L to 10 mL	***

*For standard needle dimensions, go to page 17
 **For custom needle dimensions, go to page 22
 ***Outer Diameter 1.6 mm, Inner Diameter 0.8 mm



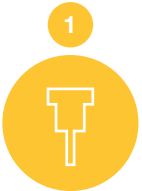
Removable Needle Hubs

Seated at the zero line of the syringe, minimizing dead volume, and enabling complete priming of small volume syringes. The difference between a Small and Large Hub Removable Needle (RN) is the outer diameter of the hub and ferrule.



	NEEDLE HUB STYLES	COMPATIBILITY	NEEDLE GAUGE
SMALL HUB REMOVABLE NEEDLE SMALL RN NEEDLE		Removable Needle (RN) Syringes 2.5 μ L to 100 μ L	34 – 18 gauge
LARGE HUB REMOVABLE NEEDLE LARGE RN NEEDLE		Removable Needle (RN) Syringes 250 μ L to 10 mL Sample Lock (SL) Syringes 50 μ L to 100 mL	31 – 10 gauge
PEEK LARGE HUB REMOVABLE NEEDLE PEEK LARGE RN NEEDLE		Removable Needle (RN) Syringes 250 μ L to 10 mL Sample Lock (SL) Syringes 50 μ L to 100 mL	***

Remove the original needle and PTFE ferrule from the RN termination before inserting the replacement needle assembly.



ChemSeal Needle Hubs

Designed to fit any standard ChemSeal / C-Termination Syringe or any such 1/4"-28 UNF thread.



	NEEDLE HUB STYLES	COMPATIBILITY	NEEDLE GAUGE
C-F METAL HUB NEEDLE C FEMALE NEEDLE		ChemSeal Syringes 10 µL to 10 mL	26s – 10 gauge
C-M COLORED PEEK NUT FOR RN NEEDLE C MALE NEEDLE		Can be connected with any Female 1/4"-28 UNF thread	-
VENTING C-FEMALE NEEDLE		ChemSeal Syringes 10 µL to 10 mL Septum piercing applications	* / **
VENTING C-MALE NEEDLE		PEEK Syringes 10 µl to 50 mL	* / **

*For standard needle dimensions, go to page 21
**For custom needle dimensions, go to page 22

- i** Complete priming of the syringe and needle is critical to achieving the stated accuracy and precision. Excessive dead volume can make it impossible to completely prime syringes smaller than 100 µL.
- i** All colored Nuts are sold in three-packs, separately from the needles. The color will need to be specified on order.

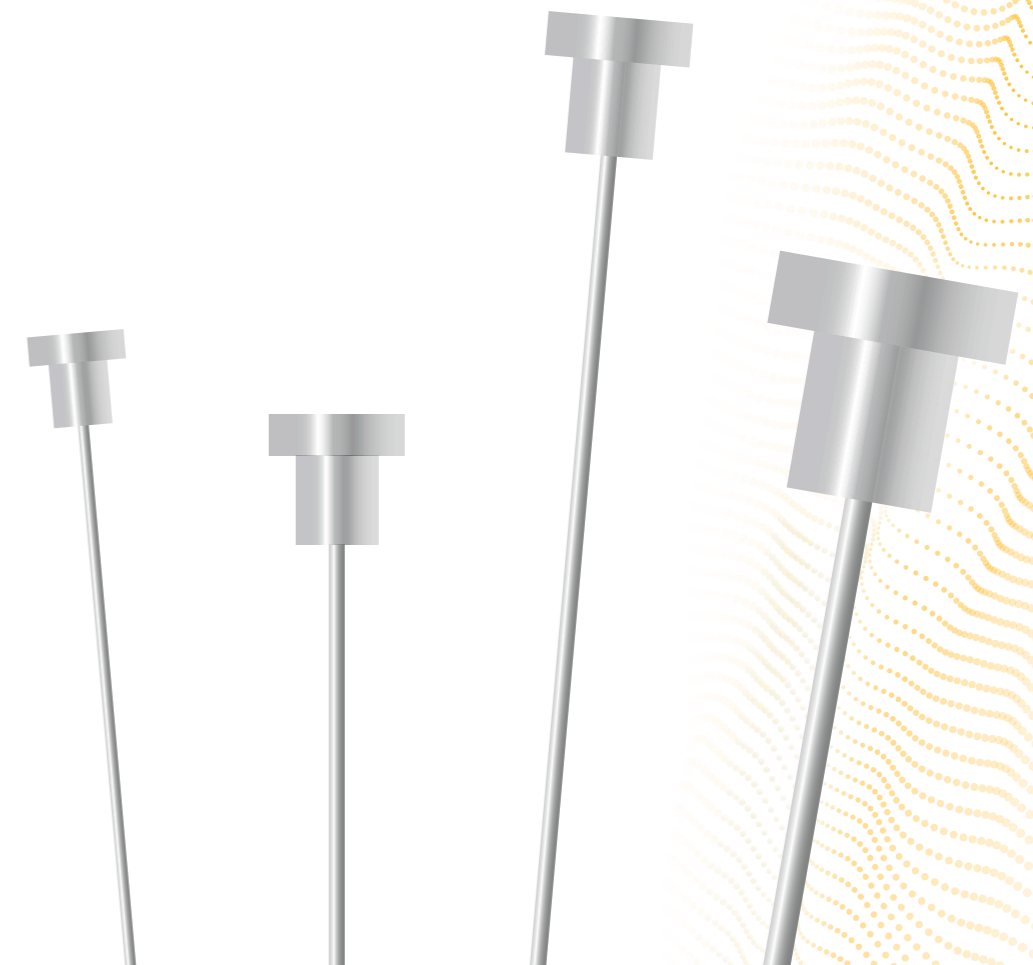


Valve Port Needle Hubs

Designed to be connected to a tubing port on a Hamilton valve.

	NEEDLE HUB STYLES	COMPATIBILITY	NEEDLE GAUGE
HAT NEEDLE		Use the needle bushing part number 35056 to connect the needle directly to any 1/4"-28 UNF thread	14 - 26 gauge

Hat needles are sold in three-packs



Picking the Suitable Gauge

The Gauge Index contains the nominal inner and outer dimensions of the tubing used in Hamilton needles. If the needle dead volume exceeds 20% of the nominal syringe volume then special priming steps may be required.

If the application requires septum penetrations, it would be recommended to choose a gauge smaller than 26 gauge or there will be an increased risk of bending the needle. Also avoid needles larger than 22 gauge to avoid coring the septum resulting in a clogged needle.

When choosing a needle gauge to connect to a small volume syringe, it is critical to take into account the needle's dead volume which is listed in $\mu\text{L}/\text{mm}$ in the gauge index.

When the sample to be dispensed is viscous, a small gauge needle (27 – 34) can make it difficult to aspirate sample into the syringe. If a small gauge needle is required, it may be necessary to backfill the syringe.






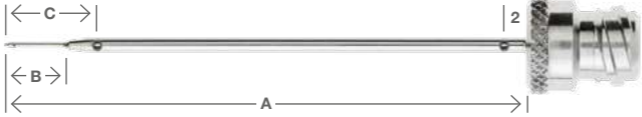
GAUGE	NOMINAL OD	NOMINAL ID	VOLUME
34	0.159 mm	0.051 mm	0.02 $\mu\text{L}/\text{cm}$
33	0.210 mm	0.108 mm	0.09 $\mu\text{L}/\text{cm}$
32	0.235 mm	0.108 mm	0.09 $\mu\text{L}/\text{cm}$
31	0.261 mm	0.133 mm	0.14 $\mu\text{L}/\text{cm}$
30	0.312 mm	0.159 mm	0.20 $\mu\text{L}/\text{cm}$
29	0.337 mm	0.184 mm	0.27 $\mu\text{L}/\text{cm}$
28	0.362 mm	0.184 mm	0.27 $\mu\text{L}/\text{cm}$
27	0.413 mm	0.210 mm	0.35 $\mu\text{L}/\text{cm}$
26s	0.474 mm	0.127 mm	0.13 $\mu\text{L}/\text{cm}$
26	0.464 mm	0.26 mm	0.53 $\mu\text{L}/\text{cm}$
25s	0.515 mm	0.153 mm	0.18 $\mu\text{L}/\text{cm}$
25	0.515 mm	0.260 mm	0.53 $\mu\text{L}/\text{cm}$
24	0.566 mm	0.311 mm	0.76 $\mu\text{L}/\text{cm}$
23s	0.642 mm	0.116 mm	0.11 $\mu\text{L}/\text{cm}$
23	0.642 mm	0.337 mm	0.89 $\mu\text{L}/\text{cm}$
22s	0.718 mm	0.152 mm	0.18 $\mu\text{L}/\text{cm}$
22	0.718 mm	0.413 mm	1.34 $\mu\text{L}/\text{cm}$
21	0.819 mm	0.514 mm	2.07 $\mu\text{L}/\text{cm}$
20	0.908 mm	0.603 mm	2.86 $\mu\text{L}/\text{cm}$
19	1.07 mm	0.686 mm	3.70 $\mu\text{L}/\text{cm}$
18	1.27 mm	0.838 mm	5.52 $\mu\text{L}/\text{cm}$
17	1.47 mm	1.07 mm	8.94 $\mu\text{L}/\text{cm}$
16	1.65 mm	1.19 mm	11.2 $\mu\text{L}/\text{cm}$
15	1.83 mm	1.37 mm	14.8 $\mu\text{L}/\text{cm}$
14	2.11 mm	1.80 mm	25.6 $\mu\text{L}/\text{cm}$
13	2.41 mm	1.80 mm	25.6 $\mu\text{L}/\text{cm}$
12	2.77 mm	2.16 mm	36.6 $\mu\text{L}/\text{cm}$
11	3.05 mm	2.39 mm	44.8 $\mu\text{L}/\text{cm}$
10	3.40 mm	2.69 mm	57.0 $\mu\text{L}/\text{cm}$

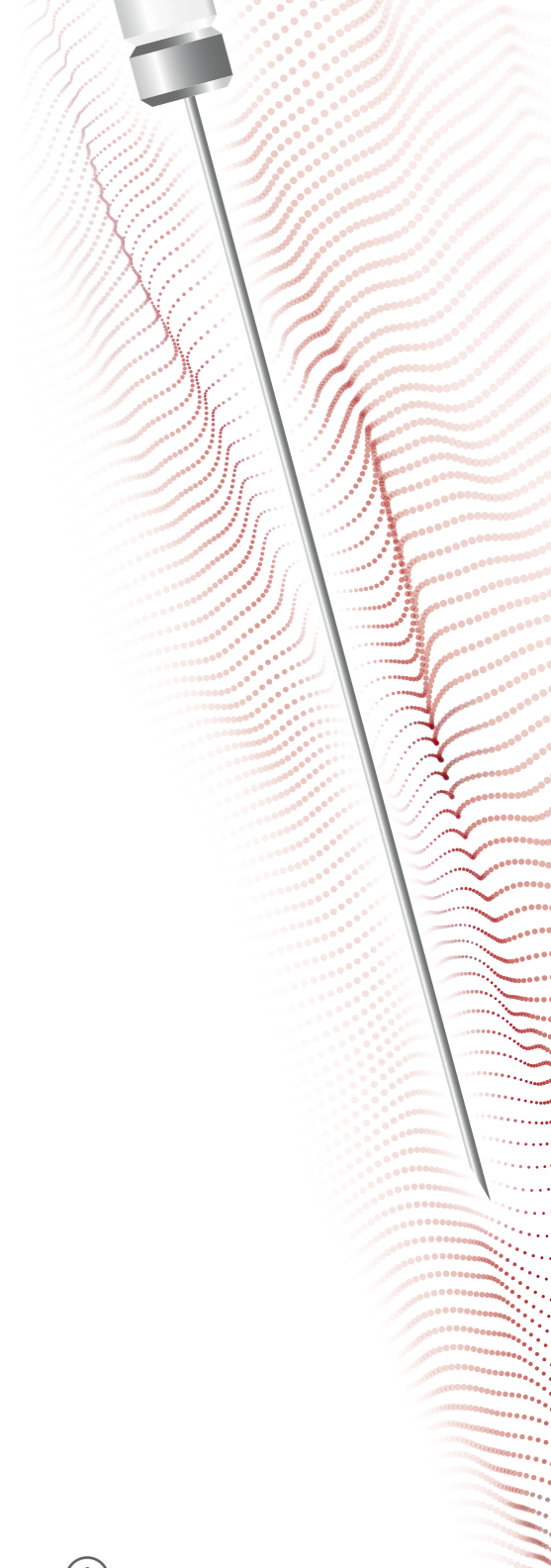
Determining the Needle Length

HUB STYLE

DIMENSION IMAGE

DESCRIPTION







<p>METAL HUB NEEDLE N NEEDLES</p>		<p>Needle length is specified from the needle point to the start of the hub</p>
<p>KEL-F HUB NEEDLE KF NEEDLES</p>		<p>Needle length is specified from the needle point to the start of the hub</p>
<p>SMALL GAUGE RN HUB NEEDLE</p>		<p>Needle length is specified from the needle point to the start of the support sleeve</p>
<p>STANDARD RN HUB NEEDLE</p>		<p>Needle length is specified from the needle point to the start of the RN nut The distance from the needle point to the hub is length + 1.8 mm</p>
<p>C-F METAL HUB NEEDLE C FEMALE NEEDLES</p>		<p>Needle length is specified from the needle point to the start of the hub</p>
<p>C-M COLORED PEEK NUT FOR RN NEEDLE C MALE NEEDLE</p>		<p>The needles compatible with this nut are: RN Large and RN Small The distance from the needle point to the nut is RN needle length – 11 mm Example: Standard RN Length, 51 mm – 11 mm = 40 mm – tip to nut</p>
<p>HAT HUB NEEDLE</p>		<p>Needle length is specified from the needle point to the start of installation hardware The distance from the needle point to the back end of the hub is length + 14.22 mm</p>
<p>VENTING HUB NEEDLE</p>		<p>The needle length is determined by using this specifications: A = Needle length from the needle point to the start of the hub B = Needle length from the needle point to the sleeve C = Needle length from the needle point to the first venting hole</p>



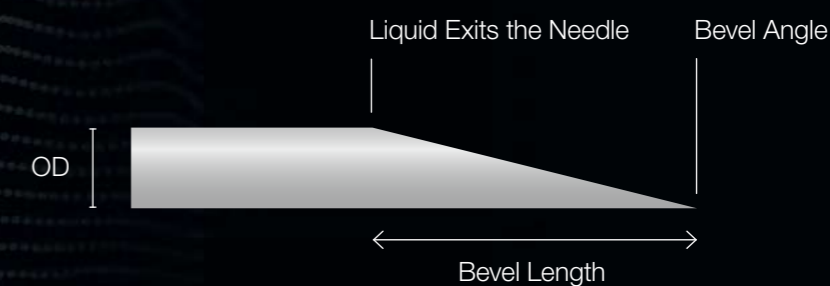
i The needle length for most standard Hamilton needles is 51 mm ± 1 mm.

i Custom needles are available in lengths from 10 mm to 304 mm. If a longer needle is required, contact your local representative to determine available possibilities.

Selecting the Correct Point Style

ID	POINT STYLE	DESCRIPTION	APPLICATION	GAUGES
2		10 – 12° sharp, beveled, curved non-coring	Gas Chromatography (GC), septum piercing	33 – 10 ga
3		Blunt, electro-polished	High Performance Liquid Chromatography (HPLC) injection, Thin-Layer Chromatography (TLC), general liquid handling, controlled animal injections	34 – 10 ga
3T		Blunt, electro-polished, coated with PTFE 19 mm from the tip	Thin-Layer Chromatography (TLC) applications	26s, 22s, and 22 ga
4		Sharp 10 – 12° beveled needle; other angles* available upon request	Life science/animal injections	34 – 10 ga
5		Conical with side port for penetration without coring	Headspace, applications prone to needle clogging, causes minimal septum damage	26 – 10 ga
AS		Conical, non-coring designed to withstand multiple injections	Autosampler injection, pre-pierced septa	26 – 10 ga

Calculating Point Style 4 Bevel Length



$$\text{Bevel Length} = \frac{\text{OD}}{\tan(\text{Bevel Angle})}$$

For example: A 27 gauge needle (OD = 0.413) with a point style 4 beveled at 30 degrees:

$$\text{Bevel length} = 0.413 \text{ mm} / \tan 30 = 0.715 \text{ mm}$$

i **ATTENTION!** When choosing a custom hubed needle with a sharp Point Style 4, short needle length and large outer diameter! It may be impossible to manufacture (example: KF Needle, at the length of 10mm, needle gauge 10 with Point Style 4 at 10-12°, the bevel length is between 19 to 16 mm). To avoid this situation the above formula can be used.

You have built
the perfect needle
to perform your
applications

Now, you just have to order it

Metal Hub Needles	15
Kel-F Hub Needles	16
Venting TLL Female Needles	17
Venting TLL Male Needles	17
PEEK Needles	17
Small Hub Removable Needles	18
Large Hub Removable Needles	19
Metal C Female Needles	20
PEEK C Male Colored Needles	21
Venting C-Female Needles	21
Venting C-Male Needles	21
Venting Needles	22
Hat Hub Needles	23
Stainless Steel Tubing	23

Metal Hub Needles



GAUGE	STANDARD			CUSTOM	
	LENGTH: 51 MM			LENGTH: 10 - 304 MM	
	POINT 2	POINT 3	POINT 5	POINT 2, 3 OR 4	POINT 5 OR AS
33 ga	90033	91033	–	7747-01	
32 ga	90032	91032	–	7747-02	
31 ga	90031	91031	–	7748-17	
30 ga	90030	91030	–	7748-16	
29 ga	90029	91029	–	7748-15	
28 ga	90028	91028	–	7748-14	
27 ga	90027	91027	–	7748-13	
26s ga	90039	91039	7729-01	7748-19	7751-19
26 ga	90026	91026	7729-03	7748-12	7751-17
25s ga	90052	–	–	7748-21	7751-21
25 ga	90025	91025	7729-04	7748-11	7751-16
24 ga	90024	91024	7729-05	7748-10	7751-15
23s ga	–	–	–	7748-20	7751-20
23 ga	90023	91023	7729-06	7748-09	7751-14
22s ga	90038	91038	7729-02	7748-18	7751-18
22 ga	90022	91022	7729-07	7748-08	7751-13
21 ga	90021	91021	7729-08	7748-07	7751-12
20 ga	90020	91020	7729-09	7748-06	7751-11
19 ga	90019	91019	7729-14	7748-05	7751-10
18 ga	90018	91018	7729-10	7748-04	7751-09
17 ga	90017	91017	7729-11	7748-03	7751-08
16 ga	90016	91016	7729-12	7748-02	7751-07
15 ga	90015	91015	7729-13	7748-01	7751-06
14 ga	90014	91014	7730-01	7749-05	7751-05
13 ga	90013	91013	7730-02	7749-04	7751-04
12 ga	90012	91012	7730-03	7749-03	7751-03
11 ga	90011	91011	7730-04	7749-02	7751-02
10 ga	90010	91010	7730-05	7749-01	7751-01

Hamilton needles are sold in six-packs and the standard needles are 51 mm long

Kel-F Hub Needles



GAUGE	STANDARD			CUSTOM	
	LENGTH: 51 MM			LENGTH: 10 - 304 MM	
	POINT 2	POINT 3	POINT 5	POINT 2, 3 OR 4	POINT 5 OR AS
31 ga	90131	90531	-	7750-22	-
30 ga	90130	90530	-	7750-21	-
29 ga	90129	90529	-	7750-20	-
28 ga	90128	90528	-	7750-19	-
27 ga	90127	90532	-	7750-18	-
26s ga	90139	90539	7746-12	7750-24	7752-19
26 ga	90126	90533	7746-10	7750-17	7752-17
25s ga	-	-	-	7750-26	7752-21
25 ga	90125	90525	7746-09	7750-16	7752-16
24 ga	90124	90524	7746-08	7750-15	7752-15
23s ga	-	-	-	7750-25	7752-20
23 ga	90123	90523	7746-07	7750-14	7752-14
22s ga	90138	90534	7746-11	7750-23	7752-18
22 ga	90122	90134	7746-06	7750-13	7752-13
21 ga	90121	90521	7746-05	7750-12	7752-12
20 ga	90120	90520	7746-04	7750-11	7752-11
19 ga	90119	90519	7746-13	7750-10	7752-10
18 ga	90118	90535	7746-03	7750-09	7752-09
17 ga	90117	90517	7746-02	7750-08	7752-08
16 ga	90116	90516	7746-01	7750-07	7752-07
15 ga	90115	90515	7746-14	7750-06	7752-06
14 ga	90114	90514	7746-15	7750-05	7752-05
13 ga	90113	90513	-	7750-04	7752-04
12 ga	90112	90512	-	7750-03	7752-03
11 ga	90111	90511	-	7750-02	7752-02
10 ga	90110	90536	7746-16	7750-01	7752-01

Venting TLL Female Needles



STANDARD									
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	TTL Female	17	20
210541	NDL VENT (1.0/76/5) TLL-F	1.00	0.70	1.80	76	5	TTL Female	30	33
210542	NDL VENT (1.6/102/5) TLL-F	1.60	1.20	2.50	102	5	TTL Female	60	63
210543	NDL VENT (2.0/102/5) TLL-F	2.00	1.60	3.00	102	5	TTL Female	60	63

Venting TLL Male Needles



STANDARD									
PART NUMBER	DESCRIPTION	O.D. MM	I.D. MM	C.D. MM	A MM	PST	HUB	B MM	C MM
210544	NDL VENT (0.5/51/5) TLL-M	0.50	0.25	1.40	51	5	TTL Male	17	20
210545	NDL VENT (1.0/76/5) TLL-M	1.00	0.70	1.80	76	5	TTL Male	30	33
210546	NDL VENT (1.6/102/5) TLL-M	1.60	1.20	2.50	102	5	TTL Male	60	63
210547	NDL VENT (2.0/102/5) TLL-M	2.00	1.60	3.00	102	5	TTL Male	60	63

Venting Needles are sold individually

PEEK Needles



STANDARD				
PART NUMBER	DESCRIPTION	LENGTH	O.D. MM	I.D. MM
8649-01	Hub Kel-F	51	1.6	0.8
8650-01	Hub Large RN	51	1.6	0.8

Small Hub Removable Needles

STANDARD				
LENGTH	GAUGE	POINT 2	POINT 3	POINT 5
51 mm	33 ga	-	7762-06*	-
	32 ga	-	7762-05	-
	31 ga	-	7762-04	-
	30 ga	-	7762-03	-
	29 ga	-	7762-02	-
	28 ga	-	7762-01	-
	27 ga	7758-02	7768-01	7784-07
	26s ga	7758-04	7768-02	7784-08
	22s ga	7758-03	7770-01	7784-05
	22 ga	7758-01	7770-02	7784-06

CUSTOM			
LENGTH	GAUGE	POINT 2, 3 OR 4	POINT 5 OR AS
10, 13, 25, or 38 mm	34 ga	207434**	-
	33 ga	7803-05	-
	32 ga	7803-04	-
	31 ga	7803-03	-
	30 ga	7803-07	-
	29 ga	7803-06	-
	28 ga	7803-02	-
	27 ga	7803-01	-
10 – 304 mm	26s ga	7804-04	7731-02
	26 ga	7804-03	7731-01
	25s ga	7804-10	7731-06
	25 ga	7804-05	7731-05
	24 ga	7804-08	7731-09
	23s ga	7804-09	7731-08
	23 ga	7804-07	7731-07
	22s ga	7804-02	7731-04
	22 ga	7804-01	7731-03
	21 ga	7804-12	7731-11
	20 ga	7804-11	7731-10
	19 ga	207419	7731-13
18 ga	7804-06	7731-12	

*38 mm / **only available as point style 3 or 4

Large Hub Removable Needles

STANDARD				
LENGTH	GAUGE	POINT 2	POINT 3	POINT 5
51 mm	26s ga	7779-02	7780-01	7784-03
	26 ga	7779-04	7780-02	7784-04
	22s ga	7779-03	7780-03	7784-01
	22 ga	7779-01	7780-04	7784-02

CUSTOM			
LENGTH	GAUGE	POINT 2, 3 OR 4	POINT 5 OR AS
10 – 304 mm	26s ga	7806-04	7732-04
	26 ga	7806-03	7732-03
	25s ga	7806-09	7732-09
	25 ga	7806-07	7732-05
	24 ga	7806-06	7732-07
	23s ga	7806-08	7732-08
	23 ga	7806-05	7732-06
	22s ga	7806-02	7732-02
	22 ga	7806-01	7732-01
	21 ga	7806-11	7732-11
	20 ga	7806-10	7732-10

Metal C Female Needles



STANDARD				
LENGTH	GAUGE	POINT 2	POINT 3	POINT 5
51 mm	26s ga	210467	210468	-
	26 ga	210465	210466	-
	25 ga	210463	210464	-
	22s ga	210461	210462	-
	22 ga	210458	210459	210460
	21 ga	210456	210457	-
	20 ga	210454	210455	-

CUSTOM			
LENGTH	GAUGE	POINT 2, 3 OR 4	POINT 5 OR AS
10 – 304 mm	26s ga	211011	211012
	26 ga	211009	211010
	25s ga	211007	211008
	25 ga	211005	211006
	24 ga	210499	211004
	23s ga	210497	210498
	23 ga	210495	210496
	22s ga	210493	210494
	22 ga	210491	210492
	21 ga	210489	210490
	20 ga	210487	210488
	19 ga	210485	210486
	18 ga	210483	210484
	17 ga	210481	210482
	16 ga	210479	210480
	15 ga	210477	210478
	14 ga	210475	210476
	13 ga	210473	210474
12 ga	210471	210472	
11 ga	210469	210470	

PEEK C Male Colored Needles



NUT COMPATIBILITY	ITEM NUMBER	GAUGE RANGE	COLORS
Large Hub Removable Needles*	10118952	20 - 26s ga	
Small Hub Removable Needles*	10118953	18 - 34 ga	

*Needle not included – please see the pages 18 and 19

Venting C-Female Needles



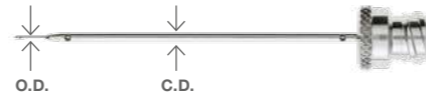
STANDARD									
PART NUMBER	DESCRIPTION	O.D. MM	I.D. MM	C.D. MM	A MM	PST	HUB	B MM	C MM
210548	NDL VENT (0.5/51/5) C-F	0.50	0.25	1.40	51	5	C-Female	17	20
210549	NDL VENT (1.0/76/5) C-F	1.00	0.70	1.80	76	5	C-Female	30	33
210550	NDL VENT (1.6/102/5) C-F	1.60	1.20	2.50	102	5	C-Female	60	63
210551	NDL VENT (2.0/102/5) C-F	2.00	1.60	3.00	102	5	C-Female	60	63

Venting C-Male Needles



STANDARD									
PART NUMBER	DESCRIPTION	O.D. MM	I.D. MM	C.D. MM	A MM	PST	HUB	B MM	C MM
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

Venting Needles



CUSTOM				
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 (1/4"-28 UNF)
4		C-Male (1/4"-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

Venting Needles are sold individually

Hat Hub Needles



CUSTOM		
LENGTH	GAUGE	POINT 2, 3 OR 4
10 - 304 mm	26 ga	90826
	25 ga	90825
	24 ga	90824
	23 ga	90823
	22 ga	90822
	21 ga	90821
	20 ga	90820
	19 ga	90819
	18 ga	90818
	17 ga	90817
	16 ga	90816
	15 ga	90815
14 ga	90814	

Hat needles are sold in three-packs

Stainless Steel Tubing



CUSTOM			
GAUGE	CUT TUBING *	POINT 2, 3 OR 4 **	POINT 5 OR AS **
33 ga	21033	22033-01	-
32 ga	21032	22032-01	-
31 ga	21031	22031-01	-
30 ga	21030	22030-01	-
29 ga	21029	22029-01	-
28 ga	21028	22028-01	-
27 ga	21027	22027-01	-
26s ga	21039	22039-01	22039-02
26 ga	21026	22026-01	22026-02
25s ga	21058	22058-01	22058-02
25 ga	21025	22025-01	22025-02
24 ga	21024	22024-01	22024-02
23s ga	21041	22041-01	22041-02
23 ga	21023	22013-01	22023-02
22s ga	21038	22038-01	22038-02
22 ga	21022	22022-01	22022-02
21 ga	21021	22021-01	22021-02
20 ga	21020	22020-01	22020-02
19 ga	21019	22019-01	22019-02
18 ga	21018	22018-01	22018-02
17 ga	21017	22017-01	22017-02
16 ga	21016	22016-01	22016-02
15 ga	21015	22015-01	22015-02
14 ga	21014	22014-01	22014-02
13 ga	21013	22013-01	22013-02
12 ga	21012	22012-01	22012-02
11 ga	21011	22011-01	22011-02
10 ga	21010	22010-01	22010-02

*Cut cannulas are sold in single-packs

**Needle cannulas are sold in six-packs that are processed and cleaned the same as a standard needle assembly



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