


# DS-33 GeneScan™ Installation Standards with GeneScan™ 600 LIZ™ Size Standard v2.0

SeqStudio™ Flex, SeqStudio™, 3500, 3730, and 3130 series instruments

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 **WARNING!** Read the Safety Data Sheets (SDSs) and follow the handling instructions. Wear appropriate protective eyewear, clothing, and gloves. Safety Data Sheets (SDSs) are available from [thermofisher.com/support](http://thermofisher.com/support).

## Product description

The DS-33 GeneScan™ Installation Standards with GeneScan™ 600 LIZ™ Size Standard v2.0 is used to verify instrument performance. The Installation Standards consist of pooled PCR products that are labeled with 6-FAM™, VIC™, NED™, and PET™ dyes. To generate the pooled products, control DNA (from CEPH individual 1347-02) has been amplified with 8 fluorescently-labeled PCR primer pairs that amplify selected microsatellite loci.

Average loci sizes for DS-33 GeneScan™ Installation Standards with GeneScan™ 600 LIZ™ Size Standard v2.0 (base pairs)

**Table 1 SeqStudio™ Flex series sizes**

Locus	POP-4™ polymer		POP-7™ polymer	
D20S119 [FAM™]	111 bp	117 bp	112 bp	118 bp
D9S1690 [FAM™]	236 bp	238 bp	236 bp	238 bp
D5S644 [VIC™]	82 bp	94 bp	83 bp	95 bp
D5S424 [VIC™]	215 bp	217 bp	215 bp	217 bp
D9S288 [NED™]	136 bp	143 bp	136 bp	144 bp
D6S289 [PET™]	171 bp	173 bp	171 bp	173 bp
D15S117 [PET™]	336 bp	338 bp	336 bp	338 bp
D18S462 [NED™]	301 bp (homozygous locus)		302 bp (homozygous locus)	

**Table 2 SeqStudio™ sizes**

Locus	SeqStudio™ Cartridge Polymer	
D20S119 [FAM™]	114 bp	120 bp
D9S1690 [FAM™]	237 bp	239 bp
D5S644 [VIC™]	85 bp	97 bp
D5S424 [VIC™]	216 bp	218 bp
D9S288 [NED™]	138 bp	145 bp
D6S289 [PET™]	171 bp	173 bp
D15S117 [PET™]	337 bp	339 bp
D18S462 [NED™]	303 bp (homozygous locus)	

**Table 3 3500 series sizes**

Locus	POP-4™ polymer		POP-6™ polymer		POP-7™ polymer	
D20S119 [FAM™]	111 bp	117 bp	112 bp	118 bp	112 bp	118 bp
D9S1690 [FAM™]	236 bp	238 bp	236 bp	238 bp	236 bp	238 bp
D5S644 [VIC™]	82 bp	94 bp	84 bp	96 bp	83 bp	95 bp
D5S424 [VIC™]	215 bp	217 bp	216 bp	218 bp	215 bp	217 bp
D9S288 [NED™]	136 bp	143 bp	137 bp	145 bp	136 bp	144 bp
D6S289 [PET™]	171 bp	173 bp	171 bp	173 bp	171 bp	173 bp
D15S117 [PET™]	336 bp	338 bp	336 bp	338 bp	336 bp	338 bp
D18S462 [NED™]	301 bp (homozygous locus)		302 bp (homozygous locus)		302 bp (homozygous locus)	

**Table 4 3730 series sizes**

Locus	POP-7™ polymer	
D20S119 [FAM™]	112 bp	117 bp
D9S1690 [FAM™]	239 bp	242 bp
D5S644 [VIC™]	84 bp	96 bp
D5S424 [VIC™]	218 bp	220 bp
D9S288 [NED™]	137 bp	145 bp
D6S289 [PET™]	173 bp	175 bp
D15S117 [PET™]	339 bp	341 bp
D18S462 [NED™]	303 bp (homozygous locus)	

**Table 5 3130 series sizes**

Locus	POP-4™ polymer		POP-7™ polymer	
D20S119 [FAM™]	112 bp	117 bp	112 bp	117 bp
D9S1690 [FAM™]	239 bp	242 bp	239 bp	242 bp
D5S644 [VIC™]	84 bp	96 bp	84 bp	96 bp
D5S424 [VIC™]	218 bp	220 bp	218 bp	220 bp
D9S288 [NED™]	137 bp	145 bp	137 bp	145 bp
D6S289 [PET™]	173 bp	175 bp	173 bp	175 bp
D15S117 [PET™]	339 bp	341 bp	339 bp	341 bp
D18S462 [NED™]	303 bp (homozygous locus)		303 bp (homozygous locus)	

**Contents and storage**

Contents	Amount	Storage
GeneScan™ DS-33 Installation Standard	4 tubes	Store the kit at -25°C to -15°C until ready to use. Upon thawing, store the size standard tube at 2°C to 8°C. Protect from light.
GeneScan™ 600 LIZ™ Size Standard v2.0	1 tube	

**IMPORTANT!** See the expiration date on the package. Do not use expired product.

## Required materials not supplied

Item		Cat. No.
Hi-Di™ Formamide		4311320
MicroAmp™ Fast Optical 96-Well Reaction Plate, 0.1 mL		4346907
MicroAmp™ Optical 96-Well Reaction Plate		N8010560
MicroAmp™ Optical 384-Well Reaction Plate		4343370
<b>Septa</b>		
SeqStudio™ Flex and 3500 series	8-Strip Septa 3500/Flex Series (Qty 24)	4410701
	96-Well Septa 3500/Flex Series	4412614
	384-Well Septa 3500/Flex Series	4412520
SeqStudio™	Septa for SeqStudio™ Genetic Analyzer, 96 well	A35641
3730 series	Plate Septa, 96 well	4315933
	Plate Septa, 384 well	4315934
3130 series	Plate Septa, 96 well	4315933

## Prepare the installation reagent

1. Resuspend the contents of the GeneScan™ Installation Standard DS-33 and the GeneScan™ 600 LIZ™ Size Standard v2.0 tubes, then centrifuge briefly to collect contents.
2. In a microcentrifuge tube, combine the volumes of installation standard, size standard, and Hi-Di™ Formamide appropriate for the instrument. See “Component volumes and well locations for the prepared installation reagent” on page 4.

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**IMPORTANT!** Use the installation reagent within 16 hours of preparation.

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3. Vortex for 30–60 seconds to mix, then briefly centrifuge.
4. Denature the DNA fragments.
  - a. Incubate the microcentrifuge tube for 5 minutes at 95°C.
  - b. Incubate the microcentrifuge tube for 2 minutes at 4°C, or on ice. Immediately proceed to the next step.
5. Dispense the volume of prepared installation reagent into the plate wells appropriate for the instrument. See “Component volumes and well locations for the prepared installation reagent” on page 4.
6. Cover the plate with septa.
  - a. Align the holes on the septum with the wells of the plate.
  - b. Press firmly until the septum snaps into position.
7. Centrifuge the plate for 1 minute to bring the mixture to the bottom and eliminate air bubbles.
8. Immediately start the run.

For information on setting up the run, see the instrument user guide.

## Component volumes and well locations for the prepared installation reagent

Table 6 SeqStudio™ Flex Series Genetic Analyzer

Component	Volume		Well location for the prepared installation reagent	
	8-capillary array	24-capillary array	96-well plate	384-well plate
GeneScan™ Installation Standard DS-33	7 µL	7 µL	Dispense 10 µL of the prepared installation reagent into wells of a 96-well plate: <ul style="list-style-type: none"> <li>• <b>8-capillary array</b>—8 wells (for example, A1–H1)</li> <li>• <b>24-capillary array</b>—24 wells (for example, A1–H3, A4–H6, A7–H9, or A10–H12)</li> </ul>	Dispense 5 µL of the prepared installation reagent into wells of a 384-well plate: <b>24-capillary array</b> —24 wells (for example, A1, A3, A5; C1, C3, C5; E1, E3, E5; G1, G3, G5; I1, I3, I5; K1, K3, K5; M1, M3, M5; O1, O3, O5)
GeneScan™ 600 LIZ™ Size Standard v2.0	14 µL	14 µL		
Hi-Di™ Formamide	259 µL	259 µL		
<b>Total volume</b>	<b>280 µL</b>	<b>280 µL</b>		

Table 7 SeqStudio™ Genetic Analyzer

Component	Volume	Well location for the prepared installation reagent
	4-capillary array	
GeneScan™ Installation Standard DS-33	2 µL	Dispense 10 µL of the prepared installation reagent into wells of a 96-well plate: 4 wells (for example, A1–D1)
GeneScan™ 600 LIZ™ Size Standard v2.0	4 µL	
Hi-Di™ Formamide	74 µL	
<b>Total volume</b>	<b>80 µL</b>	

Table 8 3500/3500xL Genetic Analyzer

Component	Volume		Well location for the prepared installation reagent
	8-capillary array	24-capillary array	
GeneScan™ Installation Standard DS-33	7 µL	7 µL	<b>Data Collection Software v3 and later:</b> Dispense 10 µL of the prepared installation reagent into wells of a 96-well plate: <ul style="list-style-type: none"> <li>• <b>8-capillary array</b>—8 wells (for example, A1–H1)</li> <li>• <b>24-capillary array</b>—24 wells (for example, A1–H3, A4–H6, A7–H9, or A10–H12)</li> </ul> <b>Note:</b> If you place the installation reagent in wells that do not correspond to injection position 1, specify the starting well position in the software. <b>Data Collection Software v1, v1.1, and v2:</b> Dispense 10 µL of the prepared installation reagent into wells of a 96-well plate: <ul style="list-style-type: none"> <li>• <b>8-capillary array</b>—8 wells: A1–H1</li> <li>• <b>24-capillary array</b>—24 wells: A1–H3</li> </ul>
GeneScan™ 600 LIZ™ Size Standard v2.0	14 µL	14 µL	
Hi-Di™ Formamide	259 µL	259 µL	
<b>Total volume</b>	<b>280 µL</b>	<b>280 µL</b>	

Table 9 3730/3730xl DNA Analyzer

Component	Volume		Well location for the prepared installation reagent
	48-capillary array	96-capillary array	
GeneScan™ Installation Standard DS-33	25 µL	50 µL	Dispense the prepared installation reagent into a 96- or 384-well optical reaction plate: <ul style="list-style-type: none"> <li>• <b>96-well optical reaction plate</b> —Dispense 10 µL into every other column (A1–H1, A3–H3,...).</li> <li>• <b>384-well optical reaction plate</b> — Dispense 5 µL into the corresponding wells for a single 48-capillary injection (A1, C1, E1, G1, I1, K1, M1, O1, A5, C5, and so on).</li> </ul> <b>Note:</b> The G5-RCT dye set is recommended for running fragment analysis applications with a 48-capillary array, and required for use with a 96-capillary array.
GeneScan™ 600 LIZ™ Size Standard v2.0	25 µL	50 µL	
Hi-Di™ Formamide	450 µL	900 µL	
<b>Total volume</b>	<b>500 µL</b>	<b>1 mL</b>	

**Table 10 3130/3130x/ Genetic Analyzer**

Component	Volume	Well location for the prepared installation reagent
	50-cm array <sup>[1]</sup>	
GeneScan™ Installation Standard DS-33	5 µL	Dispense 10 µL of the prepared installation reagent into wells of a 96-well plate: <ul style="list-style-type: none"> <li>• <b>16-capillary array</b>— 16 wells: A1–H2</li> <li>• <b>4-capillary array</b>— 4 wells: A1–D1</li> </ul>
GeneScan™ 600 LIZ™ Size Standard v2.0	10 µL	
Hi-Di™ Formamide	185 µL	
<b>Total volume</b>	<b>200 µL</b>	

<sup>[1]</sup> For a 4-capillary array, scale down the volumes.

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  - Safety Data Sheets (SDSs; also known as MSDSs)

**Note:** For SDSs for reagents and chemicals from other manufacturers, contact the manufacturer.

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**Revision history:** Pub. No. 4376923

Revision	Date	Description
F	2 February 2022	Added the SeqStudio™ Flex Series Genetic Analyzer. For the 3500/3500xL Genetic Analyzer, added POP-4™ polymer and 8-capillary volumes. Removed the 310 Genetic Analyzer. Added required materials table. Consolidated "Prepare the standard" into one procedure for all instruments. Added "Component volumes and well locations for the prepared standard".
E	2 November 2018	Updated the manufacturer address and reorganized the content.
D	28 February 2018	Added information for SeqStudio™ Genetic Analyzer. Reorganized content.
C	21 June 2006	Updated content.

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