May 2026

QIAxcel® DNA Handbook

QIAxcel DNA High Resolution Kit
QIAxcel DNA Screening Kit
QIAxcel DNA Fast Analysis Kit

For automated analysis of DNA fragments using QIAxcel instruments

Sample to Insight

Contents

Kit Contents

QIAxcel DNA High Resolution Kit (1200) Catalog number Number of assays	 929002 12 × 100
QIAxcel DNA High Resolution Cartridge (with smart key)	1
QX Separation Buffer	40 mL
QX Wash Buffer	40 mL
QX Mineral Oil	50 mL
QX DNA Dilution Buffer	15 mL
QX Intensity Calibration Marker	1 mL
QX 0.2 mL 12-Tube Strips	2
QX Colored 0.2 mL 12-Tube Strips	5
Quick-Start Protocol	1

QIAxcel DNA Screening Kit (2400) Catalog no. Number of assays	 929004 12 × 200
QIAxcel DNA Screening Cartridge (with smart key)	1
QX Separation Buffer	40 mL
QX Wash Buffer	40 mL
QX Mineral Oil	50 mL
QX DNA Dilution Buffer	15 mL
QX Intensity Calibration Marker	1 mL
QX 0.2 mL 12-Tube Strips	2
QX Colored 0.2 mL 12-Tube Strips	5
Quick-Start Protocol	1

QIAxcel DNA Fast Analysis Kit (3000) Catalog no. Number of assays	 929008 12 × 250
QIAxcel DNA Screening Cartridge (with smart key)	1
QX FA Separation Buffer	40 mL
QX Wash Buffer	40 mL
QX Mineral Oil	50 mL
QX DNA Size Marker 50 bp – 1.5 kb	100 µL
QX Alignment Marker 15 bp/3 kb	1.5 mL
QX Intensity Calibration Marker	1 mL
QX 0.2 mL 12-Tube Strips	2
QX Colored 0.2 mL 12-Tube Strips	5
Quick–Start Protocol	1

The QIAxcel DNA Fast Analysis Kit is not suited for concentration determination.

Storage

All components of the QIAxcel DNA High Resolution Kit, QIAxcel DNA Screening Kit, and QIAxcel DNA Fast Analysis Kit, except for the gel cartridge and the markers, can be stored dry at room temperature (15–25°C). The QIAxcel gel cartridge and the markers should be stored at 2–8°C upon arrival and until the first use.

Non-daily use

If the QIAxcel gel cartridge is not used on a daily basis, close the purge port with the purge port seal, return the QIAxcel gel cartridge to the blister package by inserting the capillary tips into the soft gel and storing it at 2–8°C in an upright position (see the orientation label on blister package).

Note: Storing the QIAxcel gel cartridge below 2°C can severely damage the cartridge.

Prior to use, place the QIAxcel gel cartridge in the QX Cartridge Stand with the protective cover when exposed to light, or latch it in the instrument's "Park Position" with buffer in the buffer tray, and let it stand for at least 20 min.

Daily use

If the QIAxcel gel cartridge is being used on a daily basis, store the cartridge latched in the QIAxcel instrument in the "Park Position" (refer to Section 5.1 of the *QIAxcel Connect System User Manual*).

Note: The QIAxcel instrument must be left on if the cartridge is stored in the "Park Position" and the cartridge must be latched. Do not switch the QIAxcel instrument off.

Use of multiple cartridges

If more than one QIAxcel gel cartridge is used on a daily basis, store the second cartridge in the QX Cartridge Stand in the dark or protected with the cover. Make sure that the cartridge stand reservoir is filled with wash buffer and covered with mineral oil. Alternatively, close the purge port with the seal, return the QIAxcel gel cartridge to the blister package, insert the capillary tips into the soft gel, and store at 2–8°C in an upright position (see the orientation label on blister package).

The QIAxcel gel cartridge can be stored in this manner until the expiration date indicated on the kit label.

Intended Use

QIAxcel DNA Kits are intended for molecular biology applications. These products are not intended for the diagnosis, prevention, or treatment of a disease.

All due care and attention should be exercised in the handling of the products. We recommend all users of QIAGEN® products to adhere to the NIH guidelines that have been developed for recombinant DNA experiments or to other applicable guidelines.

Safety Information

When working with chemicals, always wear a suitable lab coat, disposable gloves, and protective goggles. For more information, please consult the appropriate safety data sheets (SDSs). These are available online in convenient and compact PDF format at **www.qiagen.com/safety**, where you can find, view, and print the SDS for each QIAGEN kit and kit component.

Quality Control

In accordance with QIAGEN's ISO-certified Quality Management System, each lot of QIAxcel DNA High Resolution Kit, QIAxcel DNA Screening Kit, and QIAxcel DNA Fast Analysis Kit is tested against predetermined specifications to ensure consistent product quality.

Introduction

QIAxcel instruments, in combination with the QIAxcel DNA High Resolution Kit, QIAxcel DNA Screening Kit, or QIAxcel DNA Fast Analysis Kit, provide fully automated separation of DNA fragments according to size, with processing of up to 96 samples per run.

QIAxcel technology is based on capillary electrophoresis using QIAxcel gel cartridges. QIAxcel gel cartridges are reusable, allowing multiple runs of 12 samples to be performed (up to 100 runs with the QIAxcel DNA High Resolution Kit, 200 runs with the QIAxcel DNA Screening Kit, and 250 runs with the QIAxcel DNA Fast Analysis Kit). QIAxcel ScreenGel® Software supplied with the QIAxcel instrument provides methods suitable for most applications. In addition, customized methods can also be created — contact QIAGEN Technical Support for more details.

Kits for separation and qualification of RNA, as well as high-sensitivity DNA and RNA kits, are also available (see Ordering Information, page 33).

Principle and procedure

The QIAxcel system uses capillary gel electrophoresis to enable fast separation of nucleic acids based on size. Unlike traditional agarose gel electrophoresis, separation is performed in a capillary of a precast gel cartridge. Each sample is automatically loaded into an individual capillary (according to voltage and time parameters) and voltage for separation is applied. The negatively charged nucleic acid molecules migrate through the capillary to the positively charged end (Figure 1). As with agarose gel electrophoresis, low-molecular-weight molecules migrate faster than high-molecular-weight molecules. As the molecules migrate through the capillary, they pass a detector that detects and measures the fluorescent signal.

A photomultiplier detector converts the emission signal into electronic data, which are then transferred to the computer for further processing using QIAxcel ScreenGel Software. After processing, the data are displayed as an electropherogram or gel image.

The QIAxcel system offers a number of advantages over traditional agarose gel electrophoresis, including:

1. Higher detection sensitivity
2. Less sample wastage (minimal sample input volumes)
3. Improved fragment resolution
4. Fast analysis of up to 96 samples
5. Automated loading and analysis

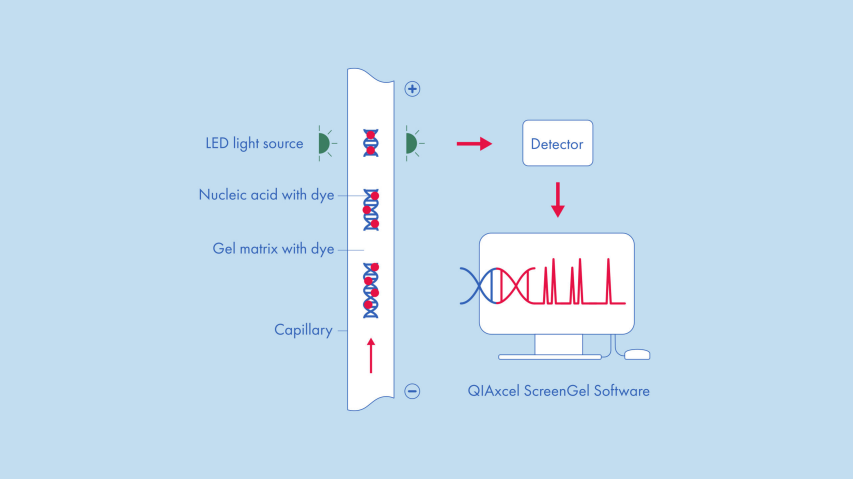

Figure 1. Sample separation process using the QIAxcel system. Nucleic acid molecules are separated according to size by applying a voltage to a gel-filled capillary. A photomultiplier detector in the instrument detects the staining dye molecules as they migrate toward the positively charged end of the capillary. The data are converted to an electropherogram and a gel image by the QIAxcel ScreenGel Software.

Equipment and Reagents to be Supplied by User

When working with chemicals, always wear a suitable lab coat, disposable gloves, and protective goggles. For more information, consult the appropriate safety data sheets (SDSs), available from the product supplier.

- QIAxcel instrument and QIAxcel ScreenGel Software
- Pipettes and pipette tips
- 12-Tube strips (e.g., QX 0.2 mL 12-Tube Strip, cat. no. 929703) or 96-well plates
- Centrifuge with rotor suitable for 0.2 mL strips or 96-well plates such as the Centrifuge 4-16 or Centrifuge 4–16K (For ordering information, see **www.qiagen.com**).
- QX Alignment Marker
- QX DNA Size Marker
- **Optional**: QX DNA Dilution Buffer (cat. no. 929601) may be required to fill empty wells.

Preparing the QIAxcel Gel Cartridge and Buffer Tray

This procedure describes how to prepare the QIAxcel DNA High Resolution Cartridge, QIAxcel DNA Screening Cartridge, QIAxcel DNA Fast Analysis Cartridge and buffer tray prior to DNA analysis.

Important points before starting

- The volume of buffer supplied is sufficient for a defined number of sample runs (see Table 1).

Table 1. Number of runs possible using the supplied buffer volumes

Kit	Number of runs	Samples per run
QIAxcel DNA High Resolution Kit	100	12
QIAxcel DNA Screening Kit	200	12
QIAxcel DNA Fast Analysis Kit	250	12

- If required, additional buffers and markers can be purchased separately (see "Ordering Information").
- Always ensure that there are no air gaps on the bottom of wells for all samples, reagents, and markers.

Unpacking and preparing the QIAxcel gel cartridge

1. Remove all buffer bottles from the kit box.
2. Add 10 mL QX Wash Buffer to both reservoirs of the QX Cartridge Stand (provided with QIAxcel instruments), and cover with 2 mL mineral oil (supplied).
3. Remove the QIAxcel gel cartridge from its packaging, and carefully wipe off any soft gel debris from the capillary tips using a soft tissue.
4. Remove the purge cap seal from the back of the QIAxcel gel cartridge and place the gel cartridge in the QX Cartridge Stand. Retain the purge port seal in case you need to store the QIAxcel gel cartridge. Use a soft tissue to wipe off any gel that may have leaked from the purge port.

   Note: Ensure that the capillary tips are submerged in QX Wash Buffer.
5. Incubate new cartridges in the QX Cartridge Stand for at least 20 min prior to use.

   Note: Once used, the QIAxcel gel cartridge must be stored in a vertical orientation. For more information, see "Storage".

Figure 2. Preparing the QIAxcel gel cartridge. Upright storage in QX Cartridge Stand (cat. no. 929708) is recommended.

Preparing the buffer tray

1. Allow all reagents to equilibrate to room temperature (15–25°C) before use.
2. Wash the buffer tray with hot water and rinse thoroughly with deionized water.
3. Fill the WP and WI positions of the buffer tray with 8 mL QX Wash Buffer.
4. Fill the BUFFER position of the buffer tray with 18 mL QX Separation Buffer or, if using a QIAxcel DNA Fast Analysis Cartridge, 18 mL QX FA Separation Buffer.
5. Carefully add mineral oil to cover all three positions to prevent evaporation: add 2 mL mineral oil to positions WP and WI, and add 4 mL mineral oil to BUFFER position.
6. Switch on the QIAxcel instrument, log in to the software, and prompt the buffer tray via the command panel to move to the front of the instrument.
7. Insert the buffer tray into the buffer tray holder so that the slots for the 12-Tube strips face the front of the instrument.

Figure 3. Preparing the buffer tray and inserting the buffer tray into the buffer tray holder.

Installing a QIAxcel gel cartridge and smart key

1. Remove the QIAxcel gel cartridge from the QX Cartridge Stand.
2. Open the cartridge door and place the QIAxcel gel cartridge into the QIAxcel instrument. The cartridge description label should face the front and the purge port should face the back of the instrument.
3. Insert the smart key into the smart key socket. The smart key can be inserted in either direction.
4. Close the cartridge door.
5. The cartridge identifier, number of runs remaining, and cartridge type are displayed automatically in the software when the cartridge smart key is inserted.

   Note: The system will not recognize the cartridge and will not operate if the smart key is not inserted.

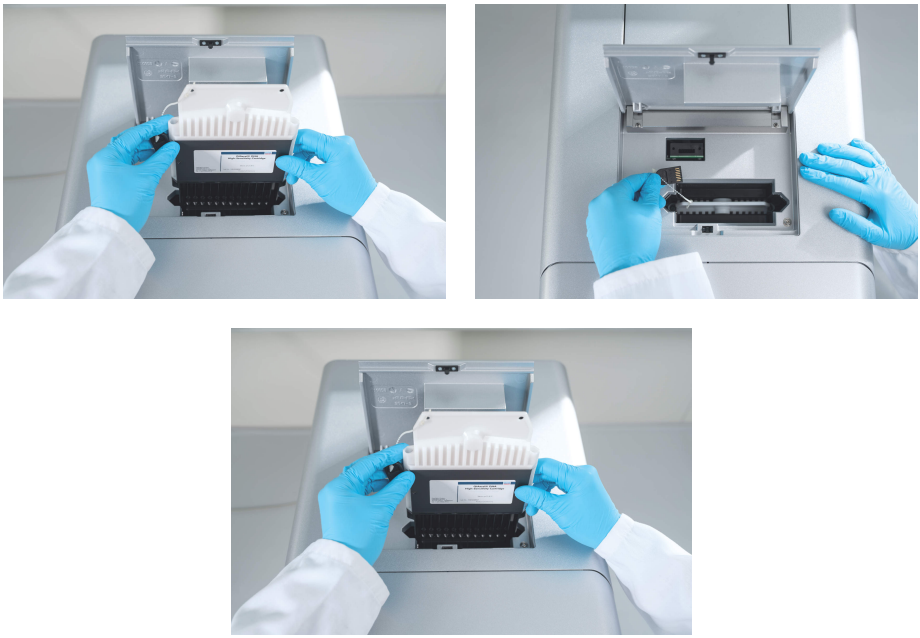

Figure 4. Installing the QIAxcel gel cartridge and smart key in the QIAxcel instrument.

Intensity Calibration

If the QIAxcel gel cartridge is being used for the first time, intensity calibration should be performed. The intensities of each capillary are normalized and a factor is applied for every subsequent run. This corrects for natural intensity reading variations between each capillary in the cartridge.

This is not necessary if the QIAxcel gel cartridge has already been calibrated, unless it is being used on a different QIAxcel instrument. If a different computer is being used to operate the QIAxcel instrument, the calibration log file must be transferred to the new computer so that calibration does not need to be performed again.

1. Load 15 µL of the QX Intensity Calibration Marker into each tube of a 0.2 mL 12-Tube Strip.
2. Place the 12-Tube strip into MARKER 2 position of the buffer tray.
3. Initiate the calibration run by clicking the **Start calibration** button in the Calibration screen of the Service environment.
4. Once the calibration is complete, the calibration results are displayed next to the gel image or the electropherogram view. The result table shows the area, calibration factor, and the result ("Pass" or "Fail") for each channel.
5. If one or more channels show high background noise, refer to "Calibrating a cartridge" section of the *QIAxcel Connect System User Manual* or *QIAxcel Advanced User Manual*).
6. If calibration fails more than twice, call QIAGEN Technical Support.

Recalibration using QIAxcel ScreenGel Software

To recalibrate a QIAxcel gel cartridge, repeat the procedure described in "Intensity calibration." The calibration results of the previous calibration procedure are discarded when recalibrating a QIAxcel gel cartridge.

Note: It is possible to calibrate a QIAxcel gel cartridge for which no calibration runs remain. In this case, three of the remaining regular runs are used instead of one calibration run.

Preparing QX Alignment Marker

1. Load 15 µL QX Alignment Marker into each tube of a 0.2 mL 12-Tube Strip.
2. Add one drop of mineral oil to each tube to prevent evaporation.
3. Place the 12-Tube strip into the MARKER 1 position of the buffer tray. It should fit loosely.

Note: QX Alignment Markers should be replaced every 50 runs or 3 days, whichever comes first.

Note: If prepared in advance, the 12-Tube strip containing QX Alignment Marker should be equilibrated to room temperature (15–25°C) and centrifuged briefly before use.

Preparing samples and size marker

The minimum sample and size marker volume required for analysis is 6 µL with the QIAxcel Connect instrument and 10 µL for the QIAxcel Advanced instrument, the predecessor of QIAxcel Connect.

1. If required, dilute DNA samples with QX DNA Dilution Buffer.
2. For each sample, pipet 6–10 µL of sample into a corresponding position of a 0.2 mL 12-Tube strip or a 96-well plate.
3. For samples diluted in QX DNA Dilution Buffer, dilute the QX DNA Size Marker to a final concentration of 20 ng/µL in QX DNA Dilution Buffer.
4. For undiluted DNA samples, dilute the QX DNA Size Marker to a final concentration of 20 ng/µL in 1× sample buffer (e.g., PCR buffer).
5. Pipet 6–10 µL of diluted Size Marker into another position of the 12-Tube strip or 96-well plate.
6. Load the sample strips or 96-well plate containing samples onto the sample tray holder.
7. For choice of a QX DNA Size Marker go to Marker Selection or visit the consumable finder on the QIAxcel Connect website: **www.qiagen.com/QIAxcelConnectSystem**

Note: If working with less than 10 µL of sample, or if samples or markers are left in instrument for prolonged time, add one drop of mineral oil.

Note: If analyzing less than 12 samples, fill empty positions with QX DNA Dilution Buffer to protect the capillaries from damage.

Note: The QIAxcel ScreenGel Software allows for saving of the QX Size Marker results. The results can be applied to the analysis of future sample runs.

Perform the Run/Sample Run and Analysis

Using a default process profile

1. Navigate to the process environment in the QIAxcel ScreenGel Software.
2. Select a process profile from the drop-down list.

   Note: Process profiles provide preset analysis and report parameters for a run. Process profiles can also be created by the user. See "Creating a new process profile" section and the software section in the *QIAxcel Connect System User Manual* or *QIAxcel Advanced User Manual* for a description of how to create process profiles.
3. Go to **Run Parameters**. Click **Preview** to check or change the pre-selected marker and sample positions in the Sample Row Selection panel.
4. Go to **Sample Selection** to enter the experiment name.
5. If required, go to **Sample Information** to enter information about the sample.
6. Open **Run Check**, and confirm that samples and markers have been loaded correctly.
7. Click **Run** to start the run.

   Note: The analysis and a report is automatically generated according to the settings in the selected default process profile.

Creating a new process profile

1. Navigate to the process environment in the QIAxcel ScreenGel Software.
2. In the "Process Profile" section, define the steps to be included in the process.
3. Open the Run Parameters dialog box. Select a run method and mark the rows containing samples by clicking the **Sample Row Selection** panel.

   For information on available run methods, refer to Method Selection of this handbook and the *QIAxcel Connect System User Manual* or *QIAxcel Advanced User Manual*.
4. If running the size marker side by side with the samples, define the position of the size marker by right-clicking the corresponding position.
5. If analysis is included, open the **Analysis** section and adjust settings if required. Go to **Marker** and select the applicable types.
6. Open the Sample Selection dialog box and name the experiment.
7. If required, go to **Sample Information** to enter information about the sample.
8. Open **Run Check** and confirm that samples and markers have been loaded correctly.
9. Click **Run** to start the run.

Note: Analysis settings can also be adjusted after the run in the Analysis environment by users with Administrator or Developer roles. For more information about changing available analysis settings, refer to the Software section in the *QIAxcel Connect System User Manual* or *QIAxcel Advanced User Manual*.

Marker Selection

Alignment marker

For optimal DNA fragment size determination using the QIAxcel DNA High Resolution Kit or the QIAxcel DNA Screening Kit, select a QX Alignment and Size Marker with a fragment size close to the size of your samples (see "Ordering Information"). Ensure that the fragment of interest is smaller than the largest peak of the chosen alignment and size marker. For example, if analyzing a sample containing DNA fragments that are 100–400 bp in size, QX Alignment Marker 15 bp/600 bp (cat. no. 929530) should be used. For general applications using the QIAxcel DNA High Resolution Kit or the QIAxcel DNA Screening Kit, QX Alignment Marker 15 bp/5 kb (cat. no. 929524) is suitable.

The QIAxcel DNA Fast Analysis Kit contains QX Alignment Marker 15 bp/3 kb (cat. no. 929522), which should be used in combination with the corresponding methods.

Alignment markers are injected from the MARKER 1 position of the buffer tray and comigrate with the DNA samples for analysis.

DNA size marker

QIAxcel ScreenGel Software calculates the DNA fragment size based on the fragment migration time in comparison to a reference QX DNA Size Marker (see Ordering Information, page 33). The DNA size (bp) is calculated using a point-to-point calculation using two DNA size marker fragments. To enable accurate size measurements, the size of the DNA fragments to be analyzed must fall within the smallest and largest fragment sizes of the QX DNA Size Marker.

The QIAxcel DNA Fast Analysis Kit contains the ready-to-use QX DNA Size Marker 50 bp – 1.5 kb. This marker should be used undiluted and is suitable for most applications of the QIAxcel DNA Fast Analysis Kit. When using the QIAxcel DNA High Resolution Kit and the QIAxcel DNA Screening Kit, dilute the 100 ng/µL QX DNA Size Markers to a final concentration of 20 ng/µL in 1× sample buffer (e.g., PCR) to ensure same conditions for samples and size marker during injection and separation. If required, dilute DNA samples with QX DNA Dilution Buffer. For samples diluted in QX DNA Dilution Buffer, dilute the DNA size marker as well in QX DNA Dilution Buffer to a final concentration of 20 ng/µL.

Table 2 provides recommendations for combining QX DNA Size Markers and QX Alignment Markers. See also the consumable finder on the QIAxcel Connect webpage (**www.qiagen.com/QIAxcelConnectSystem**).

Table 2. Recommended QX DNA Size Marker and QX Alignment Marker combinations

Size marker	Cat. no.	Alignment marker	Cat. no.
QX DNA Size Marker 25 bp – 500 bp (50 µL)*	929560	QX Alignment Marker 15 bp/ 600 bp (1.5 mL)	929530
QX DNA Size Marker 100 bp – 2.5 kb (50 µL)	929559	QX Alignment Marker 15 bp/ 5 kb (1.5 mL)	929524
QX DNA Size Marker 50 bp – 800 bp (50 µL) v2.0	929561	QX Alignment Marker 15 bp/ 1 kb (1.5 mL)	929521
QX DNA Size Marker Large-Fragment Kit 1–20 kb	929710	QX Alignment Marker 15 bp (included in the kit)	

* For DNA High Resolution cartridge only

Method Selection

A number of preinstalled methods are available for QIAxcel DNA cartridges in the QIAxcel ScreenGel Software. In addition, customized methods can also be created – contact QIAGEN Technical Support for more details.

See also the consumable finder on the QIAxcel Connect website:
www.qiagen.com/QIAxcelConnectSystem

QIAxcel DNA High Resolution Kit

The QIAxcel DNA High Resolution Kit is designed for rapid separation and analysis of DNA fragments ranging from 15 bp to 20 kb in size. Resolution depends on the fragment size and the method chosen to run the assay (see Table 3). The preinstalled methods that can be used with the QIAxcel DNA High Resolution Kit are listed in Table 3–Table 6.

Table 3. Guidelines for method selection using the QIAxcel DNA High Resolution Kit

	Fragment size			
	100–500 bp	**500 bp – 1 kb**	**1–5 kb**	**5–10 kb**
Method	**Best resolution**			
0M400*	20 bp	100 bp	500 bp	N/A
0M500* 0L500† 0H500‡	10 bp	50 bp	200 bp	N/A
0M800* 0H800‡	3-5 bp	N/A	N/A	N/A
0M1200* 0L1200† 0H1200‡	N/A	N/A	500 bp – 1 kb	1 – 1.5 kb

* We recommend the 0M400, 0M500, 0M800, and 0M1200 methods for DNA concentrations of 10–100 ng/µL (e.g., PCR products amplified from genomic DNA with 3–40 cycles).

† We recommend the 0L500 and 0L1200 methods for DNA concentrations of <10 ng/µL.

‡ We recommend the 0H500, 0H800, and 0H1200 methods for DNA concentrations of >100 ng/µL (e.g., high-yield PCR products).

M methods

We recommend the 0M400, 0M500, 0M800, and 0M1200 methods for DNA concentration of 10–100 ng/µL.

Table 4. M methods for use with the QIAxcel DNA High Resolution Kit

Method	Sample injection voltage (kV)	Sample injection time (s)*	Separation voltage (kV)	Separation time (s)
0M400	5	10	6	400
0M500	5	10	5	500
0M800	5	10	3	800
0M1200	5	10	3.5	1200

* Sample injection time can be adjusted (minimum 1 s; maximum 60 s). Reduce the injection time if the signal is saturated, as indicated by peaks with flat tops. Increase sample injection time if the signal is below the default setting of the positive threshold of 5.00 S/N.

L methods

We recommend the 0L500 and 0L1200 methods for DNA concentrations of <10 ng/µL.

Table 5. L methods for use with QIAxcel DNA High Resolution Kit

Method	Sample injection voltage (kV)	Sample injection time (s)*	Separation voltage (kV)	Separation time (s)
0L500	8	20	5	500
0L1200	8	20	3.5	1200

* Sample injection time can be adjusted (minimum 1 s; maximum 60 s). Reduce the injection time if the signal is saturated, as indicated by peaks with flat tops. Increase sample injection time if the signal is below the default setting of the positive threshold of 5.00 S/N.

H methods

We recommend the 0H500, 0H800, and 0H1200 methods for DNA concentrations of >100 ng/µL.

Table 6. H methods for use with the QIAxcel DNA High Resolution Kit

Method	Sample injection voltage (kV)	Sample injection time (s)*	Separation voltage (kV)	Separation time (s)
0H500	2	20	5	500
0H800	2	20	3	800
0H1200	2	20	3.5	1200

*Sample injection time can be adjusted (minimum 1 s; maximum 60 s). Reduce the injection time if the signal is saturated, as indicated by peaks with flat tops. Increase sample injection time if the signal is below the default setting of the positive threshold of 5.00 S/N.

QIAxcel DNA Screening Kit

The QIAxcel DNA Screening Kit is for genomic DNA analysis, genotyping, multiplex PCR, PCR screening, and determination of amount of oligo DNA. The gel cartridge can separate fragments from 15 bp to 20 kb, and up to 50 kb with custom protocol*. The resolution depends on the fragment size and the method chosen to run the assay (see Table 7). The methods that can be used with the QIAxcel DNA Screening Kit are listed in Table 7–Table 10.

Note: Amplification reactions contain dNTPs and primers, which can cause overestimation of the DNA concentration.

* Please contact QIAGEN Technical Support.

Table 7. Guidelines for method selection using the QIAxcel DNA Screening Kit

	Fragment size		
	<500 bp	**500 bp – 1 kb**	**1–5 kb**
Method	**Best resolution**		
AM320*	20 bp	100 bp	500 bp
AM420* AL420† AH420‡	20 bp	100 bp	500 bp
AM900	Analysis of genomic DNA		
APH600 APL600	Analysis of uncut plasmid DNA		

* We recommend the AM320, AM420, and AM900 methods for DNA concentrations of 10–100 ng/µL (e.g., PCR products amplified from genomic DNA with 30–40 cycles).

† We recommend the AL420 method for DNA concentrations of <10 ng/µL and the APL600 method for purified low-copy plasmid DNA (<50 ng/µL) in elution buffer.

‡ We recommend the 0H500, 0H800, and 0H1200 methods for DNA concentrations of >100 ng/µL (e.g., high-yield PCR products). We recommend the AH420 methods for DNA concentrations of >100 ng/µL (e.g., high-yield PCR products) and the APH600 method for purified high-copy plasmid DNA (50–300 ng/µL) in elution buffer.

M methods

We recommend the AM320, AM420, and AM900 methods for DNA concentrations of 10–100 ng/µL.

Table 8. M methods for use with the QIAxcel DNA Screening Kit

Method	Sample injection voltage (kV)	Sample injection time (s)*	Separation voltage (kV)	Separation time (s)
AM320	5	10	6	320
AM420	5	10	5	420
AM900	2	40	3.5	900

* Sample injection time can be adjusted (minimum 1 s; maximum 60 s). Reduce the injection time if the signal is saturated, as indicated by peaks with flat tops. Increase sample injection time if the signal is below the default setting of the positive threshold of 5.00 S/N.

L methods

We recommend the AL420 method for DNA concentrations of <10 ng/µL and the method APL600 for purified low-copy plasmid DNA (<50 ng/µL) in elution buffer.

Table 9. L methods for use with the QIAxcel DNA Screening Kit

Method	Sample injection voltage (kV)	Sample injection time (s)*	Separation voltage (kV)	Separation time (s)
AL420	8	20	5	420
APL600	3	5	6	600

* Sample injection time can be adjusted (minimum 1 s; maximum 60 s). Reduce the injection time if the signal is saturated, as indicated by peaks with flat tops. Increase sample injection time if the signal is below the default setting of the positive threshold of 5.00 S/N.

H methods

We recommend the AH420 method for DNA concentration of >100 ng/µL and the method APH600 for purified high-copy plasmid DNA (50–300 ng/µL) in elution buffer.

Table 10. H methods for use with the QIAxcel DNA Screening Kit

Method	Sample injection voltage (kV)	Sample injection time (s)*	Separation voltage (kV)	Separation time (s)
AH420	2	20	5	420
APH600	1	5	6	600

* Sample injection time can be adjusted (minimum 1 s; maximum 60 s). Reduce the injection time if the signal is saturated, as indicated by peaks with flat tops. Increase sample injection time if the signal is below the default setting of the positive threshold of 5.00 S/N.

QIAxcel DNA Fast Analysis

The QIAxcel DNA Fast Analysis Kit is designed for rapid analysis of PCR fragments. The gel cartridge can separate fragments ranging from 15 bp to 3 kb in size. The preinstalled methods that can be used with the QIAxcel DNA Fast Analysis Kit are listed in Table 11.

Note: The QIAxcel DNA Fast Analysis Cartridge, QX DNA Size Marker 50 bp – 1.5 kb, and the corresponding methods are not suited for concentration determination.

Generally, runs on the QIAxcel DNA Fast Analysis Cartridge have lower resolution compared to alternative QIAxcel DNA gel cartridges. For the most rapid PCR fragment analysis, with the lowest resolution, we recommend DM80 v2.0. If the resolution using DM80 v2.0 is not sufficient, we recommend DM150.

Table 11. Methods for use with the QIAxcel DNA Fast Analysis Kit

Method	Sample injection voltage (kV)	Sample injection time (s)*	Separation voltage (kV)	Separation time (s)
DM80 v2.0	15	8	15	80
DM150	10	10	10	150
DM190	10	15	10	190

* Sample injection time can be adjusted (minimum 1 s; maximum 40 s). To obtain optimal signals, we recommend using a minimum of 5 s and maximum of 15 s.

Troubleshooting Guide

The *QIAxcel Connect System User Manual* and the *QIAxcel Advanced User Manual* contain a troubleshooting guide, which may be helpful in solving any problems that may arise. In addition, extensive user information is also provided in the **Help** menu of QIAxcel ScreenGel Software. For more information, see also the Frequently Asked Questions page at our Technical Support Center (**www.qiagen.com/FAQ/FAQList.aspx**). The scientists in QIAGEN Technical Services are always happy to answer any questions you may have about either the information and protocols in this handbook or sample and assay technologies (for contact information, visit **www.qiagen.com**).

References

QIAGEN maintains a large, up-to-date online database of scientific publications utilizing QIAGEN products. Comprehensive search options allow you to find the articles you need, either by a simple keyword search or by specifying the application, research area, title, etc. For a complete list of references, visit the QIAGEN Reference Database online at **www.qiagen.com/RefDB/search.asp** or contact QIAGEN Technical Support or your local distributor.

Ordering Information

Product	Contents	Cat. no.
QIAxcel DNA High Resolution Kit (1200)	QIAxcel DNA High Resolution Cartridge, Buffers, Mineral Oil, QX Intensity Calibration Marker, 12-Tube Strips	929002
QIAxcel DNA Screening Kit (2400)	QIAxcel DNA Screening Cartridge, Buffers, Mineral Oil, QX Intensity Calibration Marker, 12-Tube Strips	929004
QIAxcel DNA Fast Analysis Kit (3000)	QIAxcel DNA Fast Analysis Cartridge, Buffers, Mineral Oil, QX Intensity Calibration Marker, QX DNA Size Marker 50 bp – 1.5 kb, QX Alignment Marker 1 bp/3 kb, 12-Tube Strips	929008
QIAxcel DNA High Sensitivity Kit (1200), (QIAxcel Connect only)	QIAxcel DNA High Sensitivity Cartridge, Buffer, Mineral Oil, QIAxcel DNA High Sensitivity Marker Set, 12-Tube Strips	929012
QIAxcel RNA QC Kit v2.0 (1200)	For 100 runs of 12 samples: QIAxcel RNA Quality Control Cartridge, Buffers, Mineral Oil, QX Intensity Calibration Marker, QX RNA Alignment Marker, QX RNA Size Marker 200–6000 nt, QX RNA Denaturation Buffer, 12-Tube Strips	929104
QIAxcel RNA High Sensitivity Kit (1200), (QIAxcel Connect only)	QIAxcel RNA High Sensitivity Cartridge, Buffer, Mineral Oil, QIAxcel RNA High Sensitivity Marker Set, QX RNA Denaturation Buffer, 12-Tube Strips	929112
QIAxcel Connect System	Capillary electrophoresis device, including computer, and QIAxcel ScreenGel Software; 1-year warranty on parts and labor	9003110
QX Size Markers		
QX DNA Size Marker 25 bp – 500 bp (50 µL) v2.0	DNA size marker with fragments of 25, 50, 75, 100, 150, 200, 250, 300, 400, and 500 bp; concentration 100 ng/µL; for use with the QIAxcel DNA High Resolution Kit	929560
QX DNA Size Marker 100 bp – 2.5 kb (50 µL)	DNA size marker with fragments of 100, 200, 300, 400, 500, 600, 700, 800, 1000, 1200, 1500, 2000, and 2500 bp; concentration 100 ng/µL	929559
QX DNA Size Marker 50 bp – 1.5 kb (100 µL)	DNA size marker with fragments of 50, 100, 200, 300, 400, 500, 1000, and 1500 bp; ready to use, for use with the QIAxcel DNA Fast Analysis Kit	929554

Product	Contents	Cat. no.
QX DNA Size Marker 50–800 bp (50 µL) v2.0	DNA size marker with fragments of 50, 100, 150, 200, 250, 300, 400, 500, 600, 700, and 800 bp; concentration 100 ng/µL	929561
QX DNA Size Marker Large Fragment Kit	DNA size marker with fragments of 1000, 3000, 5000, 10,000, and 20,000 bp; ready to use; concentration 22.75 ng/µL	929710
QX Alignment Markers		
QX Alignment Marker 15 bp/600 bp (1.5 mL)	Alignment marker with 15 bp and 600 bp fragments	929530
QX Alignment Marker 15 bp/1 kb (1.5 mL)	Alignment marker with 15 bp and 1 kb fragments	929521
QX Alignment Marker 15 bp/3 kb (1.5 mL)	Alignment marker with 15 bp and 3 kb fragments	929522
QX Alignment Marker 15 bp/5 kb (1.5 mL)	Alignment marker with 15 bp and 5 kb fragments	929524
QX Alignment Marker 15 bp/10 kb (1.5 mL)	Alignment marker with 15 bp and 10 kb fragments	929523
QX Alignment Marker 50 bp/1 kb (1.5 mL)	Alignment marker with 50 bp and 1 kb fragments	929526
QX Alignment Marker 50 bp/5 kb (1.5 mL)	Alignment marker with 50 bp and 5 kb fragments	929529
QX Calibration Marker		
QX Intensity Calibration Marker	1 mL QX Intensity Calibration	929500
QX Buffers		
QX DNA Dilution Buffer	15 mL QX DNA Dilution Buffer	929601
QX Separation Buffer (40 mL)	40 mL QX Separation Buffer	929603
QX FA Separation Buffer (40 mL)	40 mL QX FA Separation Buffer	929606
QX Wash Buffer (40 mL)	40 mL QX Wash Buffer	929604

Product	Contents	Cat. no.
QX Mineral Oil (50 mL)	50 mL QX Mineral Oil	929605
QIAxcel Accessories		
QX Cartridge Stand with Cover	QX Cartridge Stand and QX Cartridge Stand Cover	929708
QX Buffer Tray	Buffer tray for use with the QIAxcel system	929702
QX 0.2 mL 12-Tube Strip (80)	80 × QX 0.2 mL 12-Tube Strips	929703
QX Color 0.2 mL 12-Tube Strip (80)	80 × QX Color 0.2 mL 12-Tube Strips	929704
QX 0.2 mL 12-Tube Strip Caps (80)	80 strip caps for use with QX 0.2 mL 12-Tube Strips	929706
QX Nitrogen Cylinder (6)	6 QIAxcel Nitrogen Cylinders	929705

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Document Revision History

Date	Description
04/2013	Removed DM190 from Table 11. Added new screenshots, new text about recommended protocols for concentration determination and fragment analysis
11/2014	Changed date and SAP no. Updated volume of QX Intensity Calibration Marker. Deleted discontinued products from Ordering Information and added QX Alignment Markers
05/2026	Updated formatting according to the latest branding guidelines. Content update in regards to the latest instrument and software version, handling recommendations, and related products.

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