

QuantStudio 5 Dx Real-Time PCR System



Green benefits

- Fewer resources used, less waste: weighs 24% less than the prior model, generates 81% less waste from calibration

Introduction

Thermo Fisher Scientific is committed to designing our products with the environment in mind—it’s part of our mission to enable our customers to make the world healthier, cleaner, and safer. This fact sheet provides the rationale behind the environmental claim that, compared to the prior real-time PCR instrument model, the Applied Biosystems™ QuantStudio™ 5 Dx Real-Time PCR System is made with fewer materials and generates less waste.

Product description

The QuantStudio 5 Dx Real-Time PCR System is an *in vitro* diagnostic (IVD) quantitative PCR system that delivers proven performance and support to enable clinical diagnostic labs to meet their testing demands with an efficient workflow. The QuantStudio 5 Dx instrument incorporates multimode software that allows it to be used in development mode for assay development, and in IVD mode for routine *in vitro* diagnostic testing. It is an ideal platform for independent testing labs, hospitals, government and public health labs, and diagnostic test developers, in a compact footprint and cost-effective package.

Green features

Less waste and fewer resources used

When designing our products, we strive to minimize the amount of material they contain, in order to use resources more efficiently and reduce waste. With the QuantStudio 5 Dx instrument, our engineers focused on building the instrument’s capabilities into a smaller form factor. As a result, it is built with 24% less material (in final weight) than the prior model, the Applied Biosystems™ 7500 Fast Dx Real-Time PCR Instrument (Table 1). The QuantStudio 5 Dx instrument also has a 12% smaller footprint than the prior model, promoting more efficient use of laboratory space and increasing freight density to help reduce emissions during transit.



Figure 1. QuantStudio 5 Dx instrument.

Table 1. Comparison of weights and footprints of real-time PCR instruments.

Instrument	Weight (kg)	Weight reduction	Footprint length x width (cm)	Footprint reduction
QuantStudio 5 Dx	26	24%	27 x 50	12%
7500 Fast Dx	34	–	34 x 45	–

In addition, we reduced the amount of calibration materials needed, decreasing the amount of waste generated through calibration (Table 2). Dye calibration for the QuantStudio 5 Dx instrument is recommended only once per year and uses three plates to calibrate 10 dyes. The 7500 Fast Dx instrument, by comparison, should be calibrated every six months and requires a calibration plate for each of the six pure dyes plus FAM™/ROX™ and VIC™/ROX™ dye normalization plates, for a total of eight calibration plates. This means that in one year of typical use, the QuantStudio 5 Dx instrument will generate 81% less waste from calibration materials and packaging than the 7500 Fast Dx instrument.

Table 2. Comparison of materials and waste generation (including packaging) for instrument calibration.

Instrument	Calibration plate weight (g)	Quantity and frequency of calibration plates needed	Quantity of plates used per year	Waste generated per year (g)	Waste reduction per year
QuantStudio 5 Dx	60	3 plates every 12 months	3	180	81%
7500 Fast Dx	60	8 plates every 6 months	16	960	–

Designing our instruments to generate less waste and use fewer resources while delivering expected performance is a win for our customers, our company, and the planet.