

July 2020

Keywords or phrases:

Pharma Filling, Liquid Transfer, Cubis® II

Cubis® II Pharma Filling

Automated Transfer of Liquids into Bags or Flasks

The Cubis® II software application Pharma Filling controls a peristaltic pump according to a Filling Program for the transfer of liquids into receiving container(s). Receiving containers are placed on the Cubis® II Balance and an operator executes a Filling Program using the balance touchscreen.

The application is compatible with Watson-Marlow models 323Du, 530Du, 530DuN, 630Du and 630DuN via a serial communication (Figure 1).





Figure 1: Pump selection screen

A Filling Program is created by users with the role “Task Management” using menu item “Create/edit filling program” in the software main menu (Figure. 2). Users without “Task Management” role are not permitted to create, modify or delete Filling Programs. Role assignment and permissions can be set by an administrator and password protected. Filling Programs can be stored on a SQLite database on the Cubis II balance or on an external server-based Postgres database.

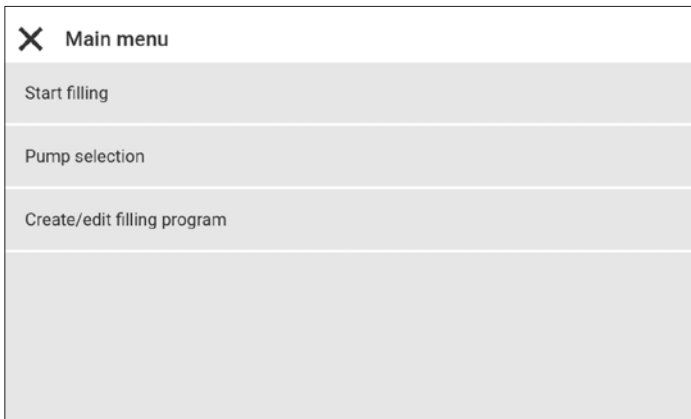


Figure 2: Filling application main menu

A Filling Program includes the parameters of the filling operation and fixed product-specific information such as Product Code, Product Name and Expiration. Batch specific information is entered by the operator when executing a program and includes Progressive number, Preparation number and Number of vessel/bags.

A filling operation consists of 3 stages; Priming, Filling and Reverse Run. Starting and stopping the Priming and Reverse Run steps are done by the operator using the touchscreen on the balance. The operator starts the Filling Process at the touchscreen on the balance but the balance signals the pump to stop when the target weight has been met.

There are 6 parameters of a Filling Program to control the filling operation:

- **Priming Speed:** this is the speed the balance will signal the pump to run during a priming step. Priming is done to clear air or residual liquid in the fluid line before filling (Figure 4). When set to “0” (zero) the priming step will not be available in program execution. Priming Steps can be skipped or repeated during program execution.
- **Filling Speed:** this is the speed the balance will signal the pump to run during a filling step (Figure 5).
- **Target Weight:** this is the weight transferred to the container(s) at which the balance will signal the pump to stop. The balance is automatically tared before the filling step. Consideration should be made for hold-up volume in the fluid pathway before the collection vessel.
- **Slow Down At:** this is the point, expressed as a percentage of the target weight, that the balance will signal the pump to slow to the designated speed. Slow Down is helpful for greater precision to the Target Weight. When set to “0” (zero) the Slow Down feature is disabled.
- **Slow Down To:** this is the speed the balance will signal the pump to run once the Slow Down At point is met.
- **Reverse Run:** this is the speed the balance will signal the pump to run in the reverse direction when prompted by the user. Reverse Run is useful to clear hold-up volume back toward the source container. When set to “0” (zero) the Reverse Run feature is disabled.

The reporting includes an optional label print for each filled sample and a comprehensive summary for all samples listing the minimum, maximum and mean filling weight, standard deviation, start and end time of the filling process (Figure 3).

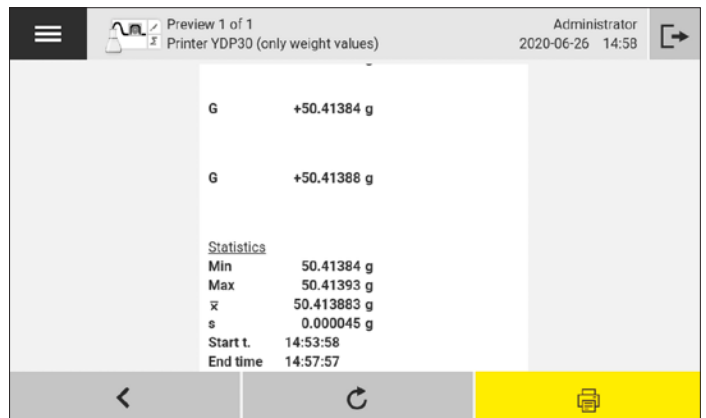


Figure 3: Print preview for processed sample

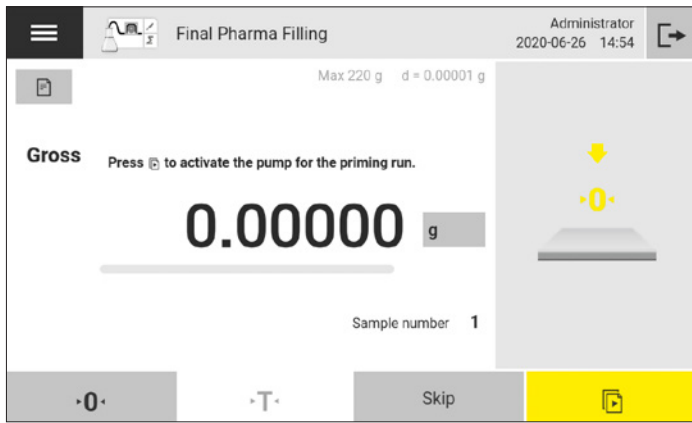


Figure 4: Priming step screen

Sartorius offers a variety of single-use systems including bags and bottles for filling. Assemblies can include aseptic connectors or weldable tubing for aseptic connection to bulk containers or transfer sets. Use the Cubis II Balance with Pharma Filling App for automated filling of Sartorius' single-use systems.

RS Distribution Manifold Accuracy & Precision

Inter-Manifold Average Bag Fill	±25g
Intra-Manifold Fill Range	<100g

The RS Distribution Manifold is an inventive solution for simultaneous filling of single-use bags or bottles. Ten containers are oriented around the central distribution hub in a concentric circle. A peristaltic pump drives fluid into the hub and to each container evenly and simultaneously. The RS Distribution Manifold can fill ten containers to 1L volume each in less than 90 seconds (Figure 6).

Use in combination with the Cubis® II Balance and Pharma Filling App for a fast, simple to use and accurate filling system with low capital cost.

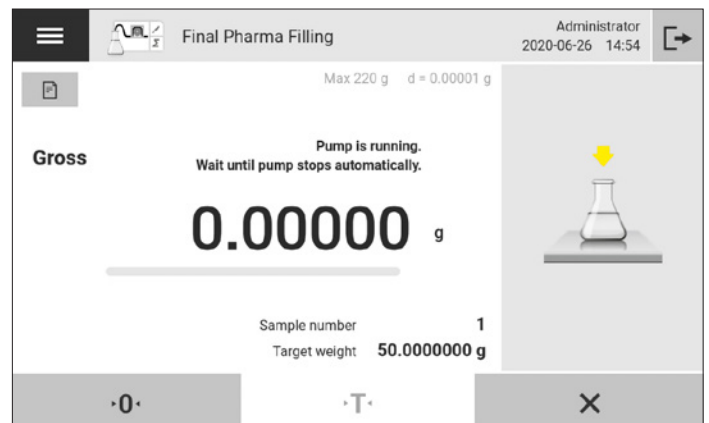


Figure 4: Filling step screen

Total Fill Time at Pump Speed (Watson-Marlow 630Du pump, 3/8"ID x 5/8"OD tubing)

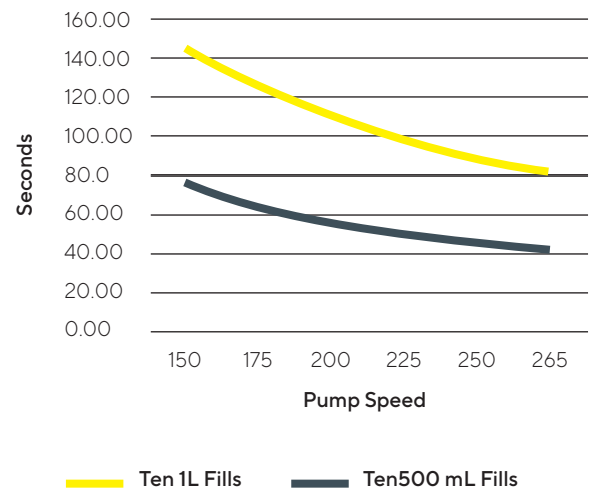


Figure 6: The fill time depends on the pump speed. The graph shows the fill time in seconds (y-axis) at set pump speed in rpm (x-axis).

Sales and Service Contacts

For further contacts, visit
[sartorius.com](https://www.sartorius.com)

Germany

Sartorius Lab Instruments
GmbH & Co. KG
Otto-Brenner-Strasse 20
37079 Goettingen
Phone +49 551 308 0

USA

Sartorius Corporation
565 Johnson Avenue
Bohemia, NY 11716
Phone 1.631.254.4249