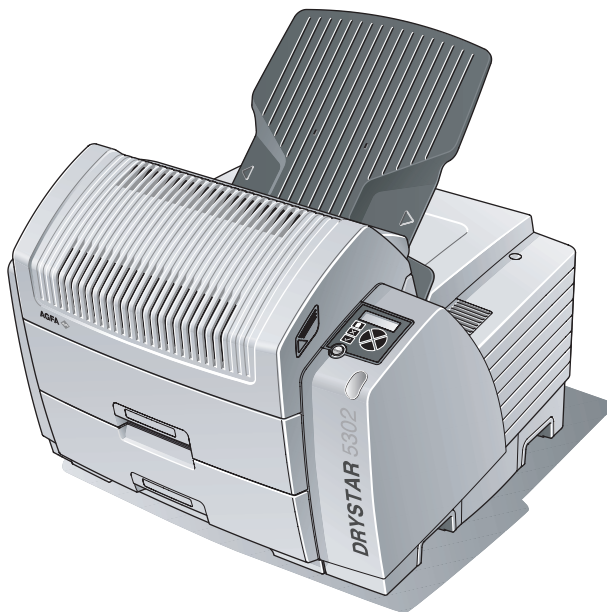


Drystar 5302

User manual



This product is registered in China under the registration number:

此设备经中华人民共和国
医疗器械监督管理条例注册
注册号：国食药监械（进）2004第1311097号
REG.NO:SFDA(I)20041311097

SFDA 注册证号: 国食药监械(进)2004第1311097号
To Be deleted

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Introducing the Drystar 5302

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This chapter introduces the Drystar 5302 to the user and draws attention to important safety precautions.

- [Drystar 5302 features](#)
- [Safety precautions](#)
- [Security precautions](#)
- [Safety compliance](#)
- [Privacy and security](#)
- [Operating modes](#)
- [Control modes \(local and remote\)](#)
- [The user interface](#)
- [Switching on the Drystar 5302](#)
- [Switching off the Drystar 5302](#)

Drystar 5302 features

The Drystar 5302 is a **dry digital tabletop printer** for producing medical diagnostic images. It can print multiple formats (8x10" up to 14x17") of blue-based and clear-based film and offers crisp, dense grayscale images.



The Drystar 5302 is a Dicom-only network printer.

The Drystar 5302 offers the following features:

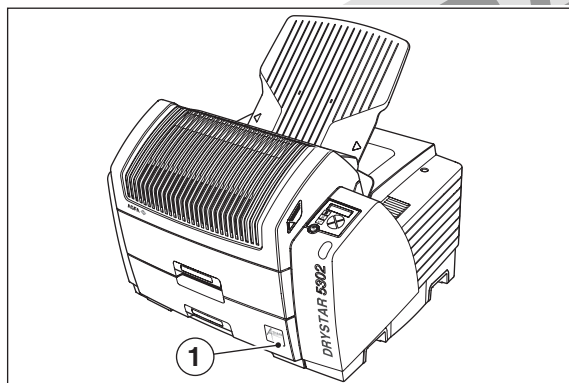
- Dry technology for printing diagnostic quality hardcopies in full daylight offers important advantages: no chemistry, no wet processing, simple cleaning procedures, no time-consuming adjustments, no darkroom and no chemical disposal costs. The consumables can be loaded in full daylight.
- With its compact design, the Drystar 5302 needs little work space and allows easy customer access. Maintenance and service activities are reduced to a minimum.
- The direct thermal printing system provides grayscale images with high quality: 320 pixels per inch resolution, each pixel with 12 bit contrast resolution and an optical density ranging from 0.2 up to 3.1 (measured with an X-Rite 310 densitometer).
- Multiple film formats (8x10", 10x12", 11x14", 14x14" and 14x17") can be used. Any combination of two film formats can be used "online". Both input trays can be adjusted for all film formats.
- The input trays of the Drystar 5302 are equipped with an RF-tag reader, which automatically traces the films used in the printer and protects the printer when detecting non-identified media.
- Number of input trays.
The Drystar 5302 is equipped with 2 input trays. Both input trays can use multiple formats (8x10" up to 14x17").

- Number of output trays.

The Drystar 5302 is equipped with 1 output tray, which is suitable for the multiple formats without any adjustment.

- Integrated A#sharp technology

A#sharp is a technology that enhances image sharpness for the Drystar 5302. An A#sharp label on the lower tray shows that the imager has been upgraded with this technology.



1	A#Sharp label
----------	---------------

Network features

- The modular design offers optimal application functionality for your specific networking requirements.

In a network configuration, the Drystar 5302 is fully compatible with Agfa's diagnostic imaging systems, including the ADC Compact and ADC Quality System software, the Paxport and the entire line of Impax Review Systems, Storage Stations and Transmitting Stations. For more information, contact your Agfa representative.

- The functionality of the Drystar 5302 is completely controlled via the network.

- You can control the working of the Drystar 5302 via the local keypad or via a remote PC with a functioning web browser.

Customizable features

■ Consumables.

The Drystar 5302 can handle Drystar DT 2B and Drystar DT 2C consumables, both in multiple formats (8x10" up to 14x17").

Software license information

- The Drystar 5302 uses software developed by the Apache Software Foundation (<http://www.apache.org/licenses/LICENSE>).

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Safety precautions



The Drystar 5302 must only be operated according to its specifications and its intended use. Any operation not corresponding to the specifications or intended use may result in hazards, which in turn may lead to serious injuries or fatal accidents (for example electric shocks). AGFA will not assume any liability whatsoever in these cases.



All images created using any image technology can show artifacts which could be mixed up with diagnostic relevant information. If there is any doubt that the diagnostic information could not be absolutely true, additional investigations must be performed to get a clear diagnostic.

When operating or maintaining the Drystar 5302, always observe the following safety guidelines:

- Have electrical or mechanical defects repaired by qualified personnel only!
- Do not override or disconnect the integrated safety features.
- Ventilation openings should not be covered.
- Always switch off the Drystar 5302 and disconnect the power cord from the outlet before carrying out any maintenance work.



Film jam removal or cleaning the printer thermal head can be done without switching the power off. Nevertheless, care should be taken and the following instructions should be respected:

Always take into account the markings provided on the inside and outside of the printer. A brief overview of these markings and their meaning is given below.











Safety warning, indicating that the Drystar 5302 manuals should be consulted before making any connections to other equipment. The use of accessory equipment not complying with the equivalent safety requirements of this printer may lead to a reduced level of safety of the resulting system. Consideration relating to the choice of accessory equipment shall include:

- Use of the accessory equipment in the patient vicinity,
- Evidence that the safety certification of the accessory equipment has been performed in accordance with the appropriate IEC 601-1 and IEC 601-1-2 harmonized national standard.

In addition all configurations must comply with the medical electrical systems standard IEC 601-1-2. The party that makes the connections acts as system configurator and is responsible for complying with the systems standard.

If required contact your local service organization.

	<p>Caution hot: Keep hands clear from the thermal print head.</p>
	<p>In order to reduce the risk of electric shock, do not remove any covers.</p>
	<p>Type B equipment: Indicates that the Drystar 5302 complies with the limits for type B equipment.</p>
	<p>Supplementary protective earth connector: Provides a connection between the Drystar 5302 and the potential equalization busbar of the electrical system as found in medical environments. This plug should never be unplugged before the power is turned off and the power plug has been removed.</p>
	<p>Intergrounding connector: Provides a connection between the printer and other equipment which might exhibit minor ground potential differences. These differences may degrade the quality of communication between different equipment. Never remove connections to this terminal.</p>
	<p>Protective earth (ground): Provides a connection between the printer and the protective earth of the mains. Do not remove this connection, because this will have a negative influence on the leakage current.</p>
	<p>Power button: Note that the power cord has to be disconnected from the wall outlet in order to disconnect the unit entirely from the mains.</p>
	<p>Precautions for use in USA only: Make sure that the circuit is single-phase center-tapped, if the printer is connected to a 240 V/60 Hz source instead of a 120 V/60 Hz source.</p>

Transport after installation

Before moving the printer, always switch off the machine. The Drystar 5302 should be transported by 3 persons or if not possible with 2. Refer to '[Remove Drystar 5302 from pallet](#)' on page 5 of the Installation manual. When doing this, the stability and the structure of the table top have to be taken into account. The printer should not be placed on a soft surface, since this might prevent appropriate ventilation and cause overheating. The printer must only be transported with all covers closed. The appliance may not be transported

continuously from one location to the other. Do not lift the printer by the output tray.

Waste disposal and environmental regulations

In most countries Drystar film is considered industrial waste and consequently it is not allowed to be disposed as household waste. Please consult your local waste disposal regulations. Agfa recommends having waste Drystar film collected by a licensed company.

After its life span, do not dispose of the Drystar 5302 without consideration of local waste disposal regulations. Please consult your local service organization.

Security precautions



U.S. Law restricts this device to sale to or on the order of a licensed physician.



Printed images should be treated as patient records and should only be viewed by authorized personnel.



If the power to the printer is unexpectedly interrupted, ensure that unprinted images are not deleted from the modality prior to printing. To avoid loss of images in such conditions, a UPS (Uninterruptable Power Supply) needs to be supplied to the printer.

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Safety compliance

EMC issues

- **USA:** This equipment has been tested and found to comply with the limits for a class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the **Drystar 5302 Reference manual**, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at its own expense.
If required, contact your local service organization.
- **Canada:** This class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.
- **EC:** This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Compliances

The Drystar 5302 has been tested and found to comply with the following international standards and regulations:

- the Medical Devices Directive 93/42/EEC
- CFR Part 21

Safety standards

- IEC 60601-1 + A1 + A2
- EN 60601-1 + A1 + A2
- UL 60601-1
- CSA 22.2 No. 601.1-M90
- GB4943-2001 (for CCC-Mark)

Radio-interference regulations (interference suppression)

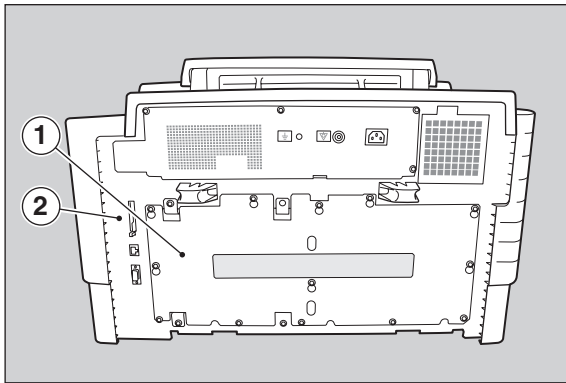
- FCC Rules 47 CFR part 15 subpart B
- IEC 60601-1-2
- CISPR 11, class A
- CISPR 22, class A
- IEC 61000-4-3
- IEC 61000-4-4
- IEC 61000-4-5
- IEC 61000-4-6
- IEC 61000-3-2
- IEC 61000-3-3
- IEC 61000-4-11
- ETSI 300330
- GB9254-1998(Class A) (for CCC-Mark)
- GB17625.1-2003 (for CCC-Mark)



Labels



The Drystar 5302 carries the CE, TÜV, cULus and CCC labels.



1	CCC label
2	CE, TÜV and cULus label

Privacy and security

Within the healthcare industry, several standardization efforts are ongoing as a response to Privacy and Security legislation and regulations. The purpose of this standardization for hospitals and vendors is to enable information sharing, interoperability and to support the workflow of hospitals in a multiple vendor environment.

In order to allow hospitals to comply with HIPAA regulations (Health Insurance Portability and Accountability Act) and to meet the IHE standards (Integrated Healthcare Enterprise) some security features are included in the user interface of the Drystar 5302 (available via the web pages only: under 'Security tools'. Refer to [Chapter 4, 'Controlling the Drystar 5302 via a remote PC \(with browser\)'](#) of the Drystar 5302 Reference manual):

- User authentication. The administrator can configure different user accounts. Each account consists of a user name and a password.
- Audit logging. This implies logging to a central log server of specific Drystar 5302 'actions', e.g. startup/shutdown, user authentication (failures), received print job ID information, etc.
- Node authentication, using certificates. Working with SSL (Secure Sockets Layer) allows secure communications over an insecure network. SSL is the security layer on top of TCP/IP.

The first two functions are available when access to the Administrator is granted (i.e. when the Administrator password has been correctly entered). To activate the SSL, please contact your Agfa representative.

Node authentication, certificates and Certification Authority

Each device - connected to a network - will receive a unique identifier: the X.509 certificate, a digital passport. Any device on the network is only allowed to communicate with another node of which it is holding the certificate in a 'communication allowed' table.

A Certification Authority (CA) is responsible for creating a certificate. The CA can be the hospital, Agfa or a third party.

This CA distributes the certificate to the hospital security responsible or service technician, who for his part:

- Imports the device certificate, created by the CA.
- Imports the certificates of all peer devices with which communication is authorized, i.e. creates the list of 'communication allowed' device certificates.

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Operating modes

The Drystar 5302 can be operated in five modes: Operator mode, Key-operator mode, Service mode, Specialist mode and Administrator mode.

Operator mode

The Operator mode groups all basic functions that are intended for radiographers without special technical skills:

- Producing diagnostic usable hardcopies;
- Loading consumables;
- Ensuring normal operation of the printer.

All functions of the Operator mode are described in both User and Reference manuals. Refer to [Chapter 2, 'Basic operation \(Operator mode\)'](#).

Key-operator mode

The Key-operator mode groups advanced functions that are intended for technically skilled operators such as X-ray operators, network managers and service and hospital technicians.

The Key-operator mode is menu-driven. The Key-operator functions are described in the **Drystar 5302 Reference manual** only. Refer to [Chapter 3, 'Advanced operation \(Key-operator mode\)'](#).

Service mode

The Service mode functions are reserved for trained Service personnel. The Service mode is password protected and is only accessible by browser via a remote PC.

Specialist mode

The specialist mode functions are reserved for trained service personnel of the Agfa Customer Support Center. The specialist mode is password protected and is only accessible by browser via a remote PC.

Administrator mode (also known as Security)

The Administrator mode functions are reserved for the System Administrator. The Administrator mode is password protected and is only accessible by browser via a remote PC.



Control modes (local and remote)

You can control the working of the Drystar 5302 via the local keypad or via a network remote PC.

The table below gives an overview of the operating modes you can access locally and/or via the remote PC.

Local	Password protected	Remote	Password protected
Operator mode	No		—
Key-operator mode	No	Key-operator mode	Yes
—	—	Service mode	Yes
—	—	Specialist mode	Yes
—	—	Administrator	Yes

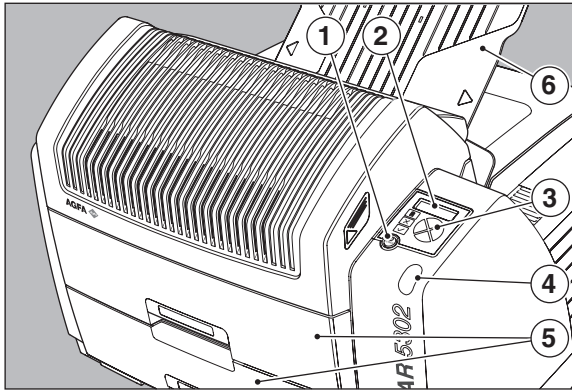
The manual describes the controlling of the Drystar 5302 via the local keypad. The menus for controlling the Drystar 5302 via a remote PC are structured in the same way and sometimes they offer even more possibilities. Refer to [Chapter 4, 'Controlling the Drystar 5302 via a remote PC \(with browser\)'](#) of the Drystar 5302 Reference manual.

The user interface

The Drystar 5302 interfaces with the user via the following controls:

- Power/Reset button;
- a keypad and a display;
- a status indicator LED;
- audio signals.

Overview of user interface controls



1	Power/Reset button
2	Display
3	Keypad
4	Status indicator LED
5	Film input trays
6	Film output tray



Never try to open the printer when the Drystar 5302 is printing a film. Always follow the instructions on the display!


The status indicator LED

On the right side of the display, an LED indicates the status of the Drystar 5302.

Color / Light		Status	Action
Green	Constant	Ready (stand-by)	Proceed
	Blinking	Busy or in key-operator mode	Wait
Red	Blinking	Warning status	Check the display for messages. Refer to ' Checking the status indicator LED ' on page 157 of the Drystar 5302 Reference manual.
	Constant	Error status	

The control buttons

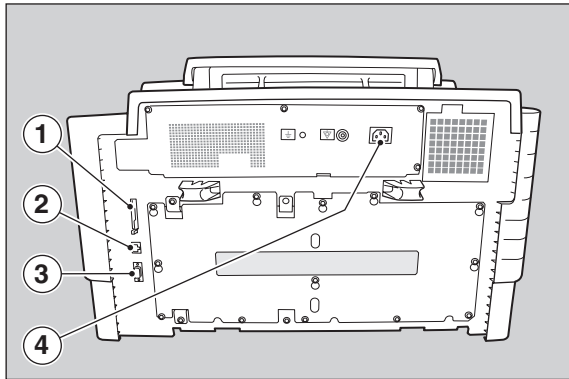
One control button has been provided:

	<p>Power/Reset button</p>	<ul style="list-style-type: none"> • To power on or off the printer. • To reset the printer.
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Do NOT press the Power/Reset button without first following the procedure to stop printing when the Drystar 5302 is printing a film. Refer to '[Switching off the Drystar 5302](#)' on page 32.

Rear panel



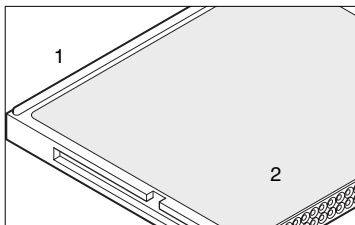
At the rear side of the printer, one slot and three connectors are available:

1	CF-card slot	<ul style="list-style-type: none"> To insert an external CF-card for software installation, backup, etc.
2	Network connector	<ul style="list-style-type: none"> To connect to the hospital network.
3	Input/output connector	<ul style="list-style-type: none"> To connect a terminal PC (used by the Service engineer).
4	Power connector	<ul style="list-style-type: none"> To connect the printer power cord.

Working with Compact flash cards (CF-card)

The Drystar 5302 is equipped with an external CF-card slot.

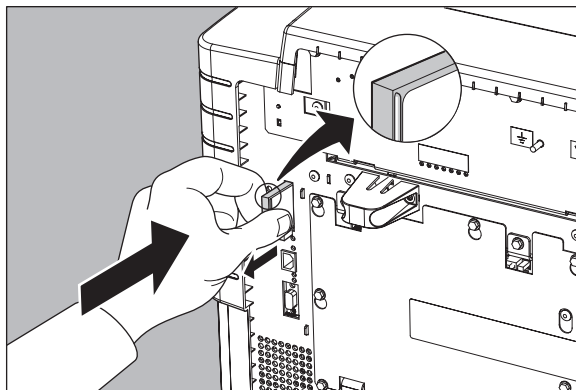
A CF-card has the following physical characteristics:



- a flat surface on one side (there is also often a label present),
- a small rim on the other side,
- connector holes on the opposite side of the rim side.

Inserting a CF-card

To insert a CF-card in the Drystar 5302 (the slot is located at the rear side):



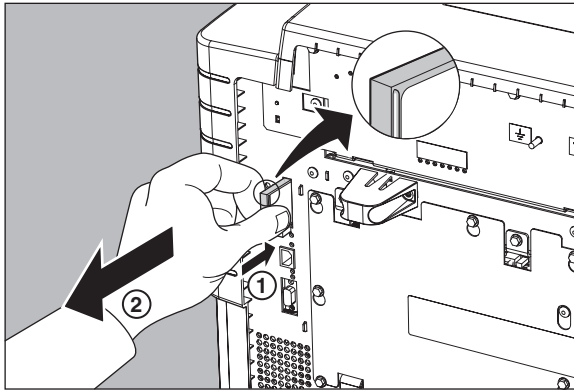
- 1 Hold the CF-card vertically with the connector holes in front of the slot and with the flat surface pointing to the left.
- 2 Insert the CF-card gently into the slot and push it until the unlocking lever underneath the slot comes out.



If you cannot push the CF-card completely into its position, this means that you have to turn it 180 degrees (while keeping the connector holes faced to the slot).

Removing a CF-card

To remove a CF-card from the Drystar 5302 slot:



- 1 Push the unlocking lever underneath the CF-card slot. The CF-card is pushed slightly outward.
- 2 Remove the CF-card gently from the slot.

Audio signals

The Drystar 5302 gives status information via beeps. The length of the beep indicates the response of the system to a key command.

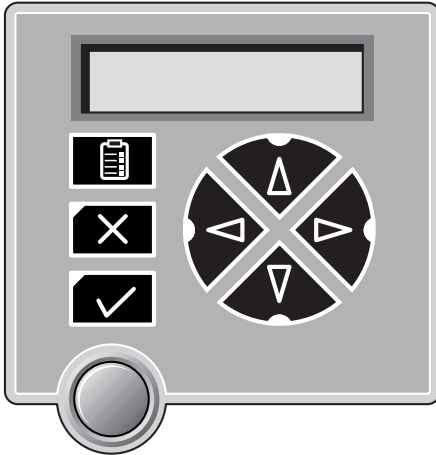
- A **short** beep means that Drystar 5302 has accepted the key command and is starting the operation.
- A **long** beep means that you have pressed a non-active key or that the Drystar 5302 has rejected the key command.










Certain conditions can cause an interval beep. An interval beep accompanies an error or warning message. Refer to [“Troubleshooting checklist”](#) on page 65.

The keypad

The keypad is located below the display panel.



The Drystar 5302 keypad features the following keys:

	Key-operator key	To access the advanced functions of the key-operator mode. Refer to <i>Chapter 3, 'Advanced operation (Key-operator mode)'</i> .
	Escape key	To quit the current function or exit a menu without saving modifications.
	Confirm key	(In key-operator mode) <ul style="list-style-type: none"> To select a menu. To accept an entry in a menu.
	Up key	<ul style="list-style-type: none"> To move the cursor to the previous entry field. To scroll upwards. To increment the number in a(n) (alpha)numerical entry field.
	Down key	<ul style="list-style-type: none"> To move the cursor to the next entry field. To scroll downwards. To decrement the number in a(n) (alpha)numerical entry field.
	Left key	<ul style="list-style-type: none"> To scroll backwards through multiple choices within a field. To move the entry position in a(n) (alpha)numerical entry field from right to left. To toggle between values in a field.
	Right key	<ul style="list-style-type: none"> To scroll forwards through multiple choices within a field. To move the entry position in a(n) (alpha)numerical entry field from left to right. To toggle between values in a field.



All keys (except the key-operator key) have an LED that is on when the key is valid in a certain situation.

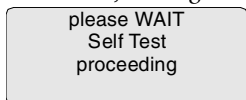


You can press and hold down an arrow key to scroll quickly through a list or a menu.

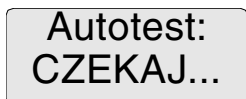
The display

The Drystar 5302 control panel has a backlit LCD display. We distinguish two panel types depending on the selected language:

- a backlit LCD display with 4 lines for Western languages (e.g. Dutch, French, Portuguese, Swedish, ...).



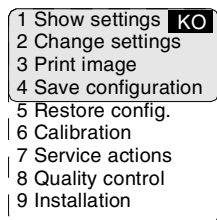
- a backlit LCD display with 2 lines for Eastern language (e.g. Greek, Chinese, Korean, Polish, ...).



Whether a display is translated or not depends on the operating mode.

General display features

The figure below shows how the display is illustrated in this manual:



Visible

Reachable with Up/Down arrow keys

The visible display lines are indicated in the grey zone. The other possible lines are shown in the white area and can be reached by scrolling using the Up/Down arrow keys on the Keypad.

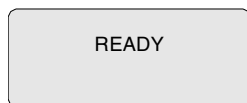
In the upper right corner, the current printer status is displayed:

- In Operator mode, two characters display the print queue status. Refer to [‘Managing the print queue’](#) on page 35.
- In Key-operator mode, two characters are displayed in reverse video to indicate the current menu- or submenu level (e.g. ‘KO’ for Key-operator main level).
- A warning, an error or a maintenance request is displayed respectively with the character W, E and M.

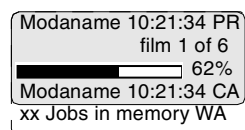
Operator mode

In **operator mode**, appropriate information is displayed in accordance with the status of the printer.

The operator basic screen looks as follows, indicating that the Drystar 5302 is ready for operation and that no job is currently being executed.



When the printer is busy with at least one print job, the print queue screen is displayed:



The **progress indicator** keeps the user informed of the progress of a process (e.g., calculation of a bitmap, printing of a film). The line is gradually filled from left to right, from 0% to 100% as the process proceeds.

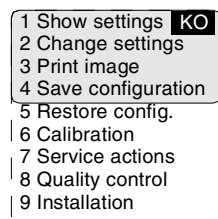


On the print queue screen the modality name defined during installation will be used to refer to the corresponding modality. In case a nickname (daily used name) has been defined during installation, this nickname will be used.

Refer to [‘Managing the print queue’](#) on page 35.

Key-operator mode

In **key-operator mode**, operation is menu driven. The menu displays the key-operator functions.



Visible

Reachable with Up/Down arrow keys

The display shows only four lines. In the above figure, they are indicated in the grey zone. The other possible lines are shown in the white area and can be reached by scrolling using the Up/Down arrow keys on the Keypad.

The active keys are indicated by their respective LEDs.

Data entry

When entering numerical or alphanumeric data, always adhere to the following principles:

- Only (alpha)numerical data can be entered.
- During data entry, the field is displayed in reverse mode.
- Increment the number in a(n) (alpha)numerical entry field by pressing the Up key. Transition from 9 to 0 of one figure will also increment the next figure to the left, respecting the valid limits of the range.
- Decrement the number in a(n) (alpha)numerical entry field by pressing the Down key. Transition from 0 to 9 of one figure will also decrement the next figure to the left, respecting the valid limits of the range.
- Move the entry position in a(n) (alpha)numerical entry field from right to left by pressing the Left key.
- Move the entry position in a(n) (alpha)numerical entry field from left to right by pressing the Right key.
- Press and hold down a key to repeat arrow key actions.
- To accept an entry in a menu, press the Confirm key.
- A short beep acknowledges and terminates the entry.
- The Drystar 5302 will sound a long beep if you press a key that is not to be used at that moment.

Switching on the Drystar 5302



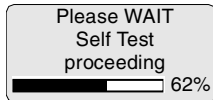
Before switching on the Drystar 5302, read the safety instructions. Refer to [‘Safety precautions’](#) on page 9.

Follow the procedure below to ensure proper startup of the Drystar 5302 and to check that everything is working correctly.

- 1 Check that the power cord is plugged in and then switch on the printer by pressing the **Power/Reset** button.



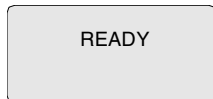
On the display, the following message is displayed. After a short while, a progress indicator will show the proceeding of the self-test.



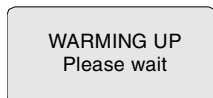
- If anything goes wrong during the self-test, refer to [‘Startup errors’](#) on page 172 of the *Drystar 5302 Reference manual*.

2 The printer is ready for operation:

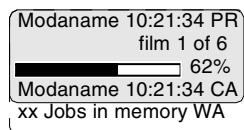
- If, on the front panel display, the READY message is shown, *the status indicator LED is constantly green.*



It takes 13 minutes (starting up of the Drystar 5302 and heating up of the thermal print head) before you can start printing. The display will inform you that the printer is warming up:



- If, on the front panel display, the print queue screen is shown, *the status indicator LED is green and blinking.*



3 Make sure that the printer is loaded with appropriate consumables.



Refer to page 38 for detailed information on loading films.



If the job status displays a warning or error indication, refer to 'Troubleshooting checklist' on page 65.

Switching off the Drystar 5302

When you want to switch off the printer, it is recommended to follow the procedure as described below, to make sure that any pending print jobs have finished printing.

- 1 Make sure that pending jobs are correctly finished. If necessary, follow the procedure to stop printing.
- 2 Press the **Power/Reset** button to switch off the Drystar 5302.



- *If the printer is ready, it shuts down immediately:*

Power off initiated
Please wait

- *If the printer is busy printing images, it will first print all images in the memory before shutting down:*

Power off after
finishing images in
memory
Please wait

- *If there is an error/warning/incident during power off and there are still unprinted images in the memory, the following message is displayed:*

Are you sure to
power off the
printer? (images in
queue will be lost)

Press the Confirm button (YES) to proceed with the power-off, or the Escape button (NO) to quit.



Powering off the printer with unprinted images in memory may result in image loss!

Basic operation (Operator mode)

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This chapter will inform on how to manage the print queue, how to print films with priority and how to load new films.

- [Overview of operator functions](#)
- [Managing the print queue](#)
- [About Drystar 5302 consumables](#)
- [Loading films](#)

Overview of operator functions

This section focuses on the basic operating principles of the Drystar 5302. After reading this chapter, the operator should be able to produce diagnostic usable hardcopies. No special technical skills are required.

All basic operator functions can be activated directly by pressing a single key on the keypad.

Function / Task	Description	Page
<i>'Managing the print queue'</i>	Jobs that have been received are put in a print queue, waiting to be printed.	35
<i>'Loading films'</i>	Instructions for loading new films on the printer.	38

Managing the print queue

You can always check the status of the print jobs.



Keep in mind that one print job can hold several films to be printed. In accordance with the acquisition modality used and with the actual settings, films can be grouped in a folder to be submitted as one print job for the Drystar 5302. Refer to the User manual of the acquisition modality for more information.

Checking the print queue

If jobs have been transmitted from the network to the Drystar 5302, they are put in the print queue on a first in, first out schedule. New jobs that are added to the queue get the 'waiting' status.

As soon as the last film of a job is ejected in the output tray, the next job that has been calculated will be put in printing status.

Example of the print queue screen:

```

Modaname 10:21:34 PR
      film 1 of 6
██████████ 62%
Modaname 10:21:34 CA
xx Jobs in memory WA
  
```

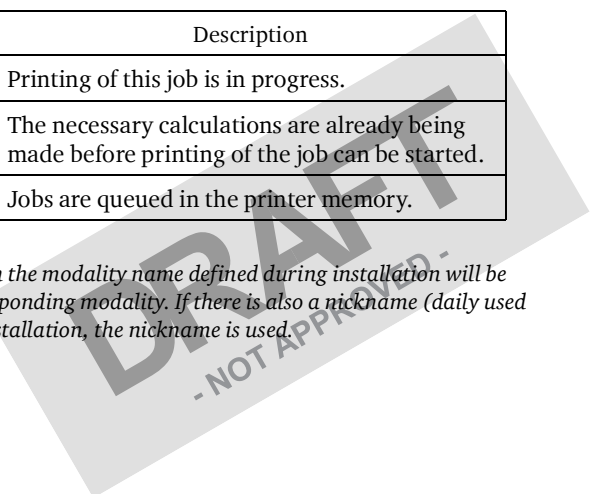
- The first line shows information on the job that is currently being printed: the modality name, the time of receipt of the job and the job status (refer to the table below).
- The second line shows how many films are to be printed for the current job and also which film from that total is currently being printed.
- The **progress indicator** keeps the user informed of the progress of a process (e.g., calculation of a bitmap, printing of a film). The line is gradually filled from left to right, from 0% to 100% as the process proceeds.
- The last line (reachable by using the down arrow key) displays the number (xx) of print jobs that are in the Waiting (WA) status. These jobs have been loaded into the print queue and they are waiting to be printed.

A description of the possible status of the jobs is listed in the table below:

Status		Description
PR	Printing	Printing of this job is in progress.
CA	Calculating	The necessary calculations are already being made before printing of the job can be started.
WA	Waiting	Jobs are queued in the printer memory.



On the print queue screen the modality name defined during installation will be used to refer to the corresponding modality. If there is also a nickname (daily used name) defined during installation, the nickname is used.



About Drystar 5302 consumables

The Drystar 5302 can handle blue-transparent and clear-transparent films. Available film formats are 8x10", 10x12", 11x14", 14x14" and 14x17".

When a new film pack is loaded, the Film Identification tag is read and the printer settings are automatically adjusted.

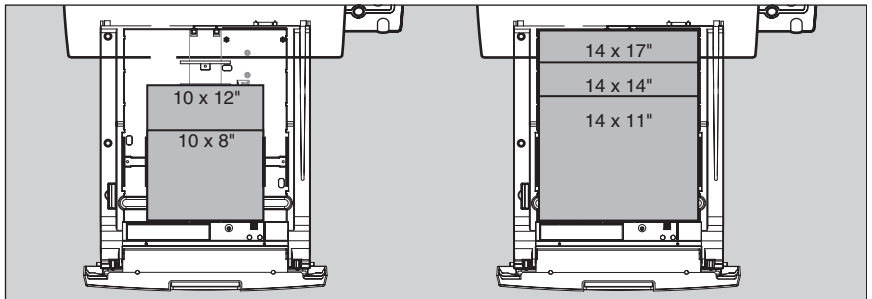
The key-operator can overrule the film settings for the input tray. Refer to [‘Changing the configuration settings’](#) on page 56 of the *Drystar 5302 Reference manual*.

The following film types can be used:

Drystar DT2 B	8x10" up to 14x17"
Drystar DT2 C	8x10" up to 14x17"



*If you want to change the film format, the tray configuration must be modified. Refer to [‘Drystar 5302 network configuration’](#) on page 148 of the *Drystar 5302 Reference manual* for more information.*



Loading films

This section describes how to load the Drystar 5302 with appropriate films.

The Drystar 5302 can be loaded with 8x10", 10x12", 11x14", 14x14" and 14x17" films.



The Drystar 5302 can be loaded with new films in full daylight. Loading films is easy and can be done very quickly. Follow the procedures as described in this section.

The Drystar 5302 will inform you in several ways when a film tray is empty:

- an audible signal,
- the status indicator LED is flashing (red color),
- the display screen shows a message informing you that the input tray is empty.



The procedure is slightly different, depending on the fact whether the Drystar 5302 is printing/calculating or in the ready state.



When the printer is in the ready state, go to Step 3.



Make sure not to load more than one film pack in an input tray. Loading more than one film pack in the input tray may damage the Drystar 5302.

When the Drystar 5302 is printing or calculating and an input tray is empty:

- 1 The display shows the following message:

Lower input tray empty

DO NOT OPEN TRAY YET
Get new film pack

- 2 Wait while the printer finishes printing any current jobs.
When the film path is cleared, proceed with step 3.

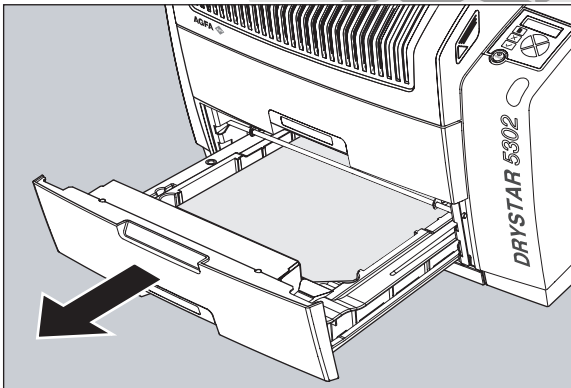
When the Drystar 5302 is in the ready state and an input tray is empty:

- 3 The display shows the following message:

Lower input tray empty

OK to Open the
INPUT TRAY

- 4 Open the empty input tray.




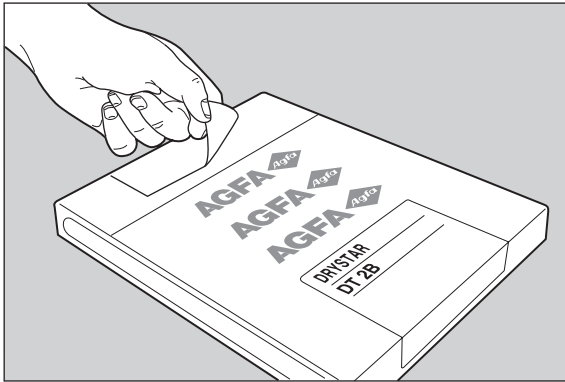
To avoid possible film jams, make sure to open input tray all the way.


- 5 The printer is ready to receive a new film when the following message appears:

Remove cover sheet
from tray
Load new film
Close tray

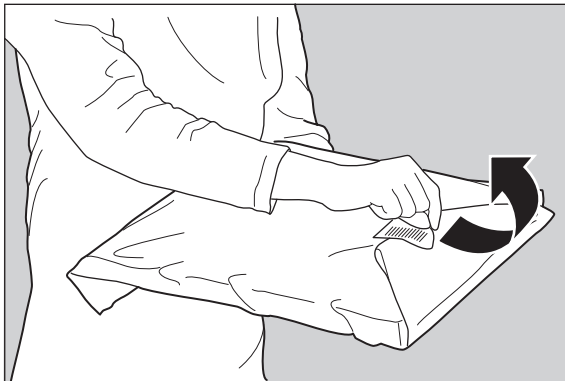
- 6 Remove the white (protective) film sheet.
- 7 Take film pack, and open it.

 *Verify that the film type on the film pack corresponds with the sticker on the tray! If you do use an other film type, you are advised to change the label on the tray.*

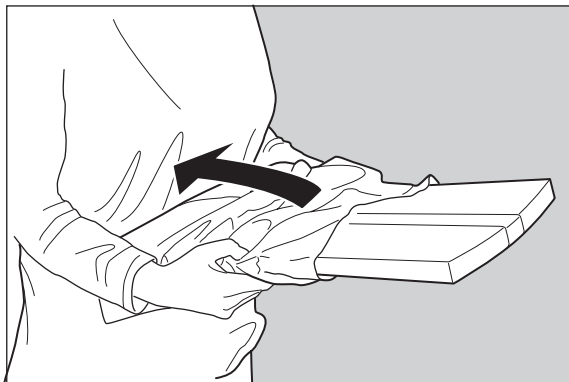


 *You can put the film pack onto a table to make manipulation easier. Before you do this, make sure that the table is dust-free!*

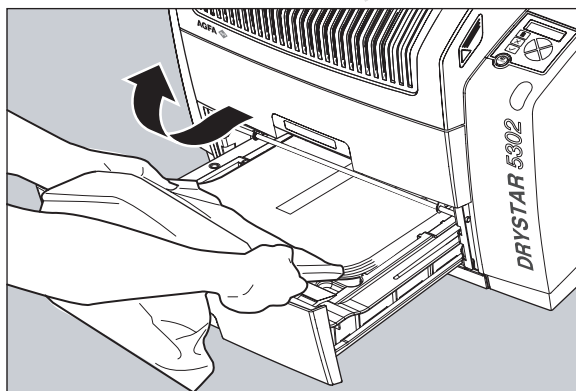
- 8 Remove the sticker from the film pack.

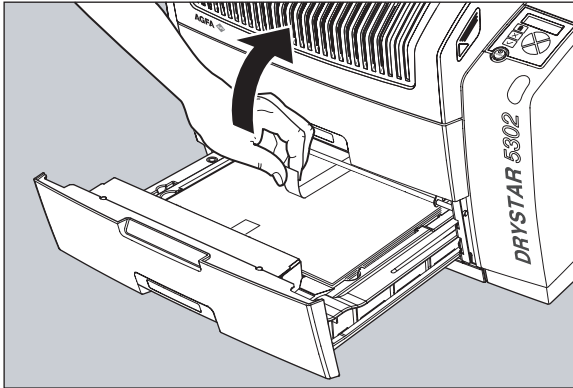





- 9 Remove the plastic film bag partially.



- 10 Slide the film pack into the input tray, and remove the plastic film bag completely.



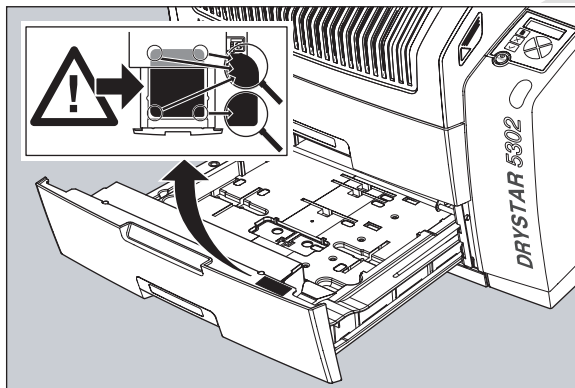
11 Tear the plastic tape from around the film pack.**12** Close the input tray.

-  *The Drystar 5302 resumes printing as soon as the tray is closed.*
-  *Loading instructions are also available on the input tray cover.*
-  *Never reuse a jammed film. Refer to [‘Clearing of film jams’](#) on page 161 of the Drystar 5302 Reference manual.*

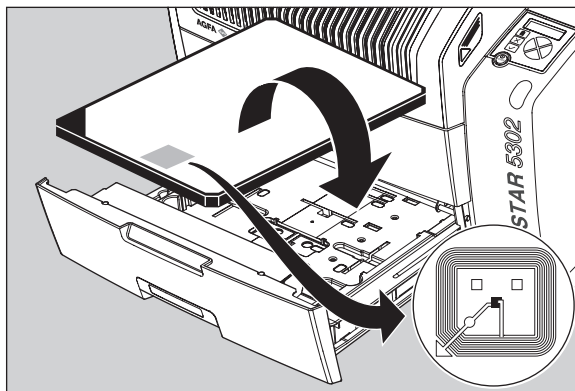
Checking the correct position of a film in the input tray



You can verify that the film is properly loaded by watching the lower right corner of the films in the input tray. The rounding of this corner should be smaller than the other three corners. This is also indicated on the sticker at the right side of the input tray cover.



When a new film is loaded, the Film Identification tag is read and the printer settings are automatically adjusted. The Film Identification tag is located on the protective sheet on the backside of the film pack. The figure below shows the film pack upside down.



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Advanced operation (key-operator mode)

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This chapter gives an overview of functions for the advanced user:

- [Overview of key-operator functions](#)
- [Quality Control](#)
- [Preventive maintenance schedule](#)
- [Cleaning the exterior](#)
- [Cleaning the print head](#)
- [Troubleshooting checklist](#)

Overview of key-operator functions

The key-operator menus make it possible to use the Drystar 5302 advanced functions.



These functions are described in detail in the Drystar 5302 Reference manual.

For general information on the key functions of the Drystar 5302, refer to *'The user interface'* on page 20.

Overview

The Drystar 5302 features the following functions on the main menu level of the key-operator mode:

Menu item	Function	Page (Ref. Man.)
Show settings	To consult the current settings of the printer.	50
Change settings	To change the current settings of the printer.	56
Print image	To print one of the Drystar 5302 test images. To load and print images from an external CF-card.	86
Save configuration	To make a backup of the printer settings.	90
Restore configuration	To restore the backup of the printer settings.	92
Calibration	To calibrate the printer.	97
Service actions	To view error, repair and maintenance data.	105
Quality Control	To perform the QC procedure.	(User Manual) 47
Installation	To install or update the Drystar 5302 software.	118



Refer to the indicated page of the Drystar 5302 Reference manual for an explanation of the function and the appropriate procedures.

Quality Control

In order to establish and maintain consistent image quality, a regular evaluation of image quality is advised.

The Drystar 5302 contains an automatic QC feature that has been designed to comply with the grayscale reproduction constancy test, according to the international standard IEC 1223-2-4.

Local Regulations may require other procedures.

The Drystar 5302 QC procedure consists of two main steps:

- Before initial use, establishing a number of reference values that will be used for further follow-up and verifying initial image quality.
- After establishing these values, performing regular daily, weekly and annual quality tests.

The results of these tests are recorded on Quality Control Charts.

The QC image (Refer to '[QC test image](#)' on page [52](#)) has several additional fields where the QC data can be filled in. This image should be filed as part of the QC procedure.

For more information, please refer to '[Quality Control Charts](#)' on page [75](#).

Establishing the reference values and verifying image quality

After installation of a new Drystar 5302 and before initial use you must establish Quality Control aim values. These values will be used as the base line for comparison when daily Quality Control is done. These values should be determined again after major service, repair or software update.

The following Quality Control aim values must be determined:

- The daily operating density levels. Refer to *'Establishing the daily operating reference density levels'* on page 49.
- Drystar 5302 image geometry. Refer to *'Establishing the image geometry reference values'* on page 52.

Once Quality Control aim values are established you must evaluate the Spatial Resolution, the Artifact Levels and the Low Contrast Visibility to determine if the image quality is acceptable. Refer to *'Verifying Acceptable Spatial Resolution, Artifact Levels and Low Contrast Visibility'* on page 54.

The Quality Control aim values, the Spatial Resolution and Artifact Levels and the Image Geometry values are all recorded on the Quality Control charts. Refer to *'Quality Control Charts'* on page 75.

On these charts, the following test conditions are also recorded:

- The type and serial number of the Drystar 5302.
- The type and emulsion number of the film used to determine the reference values.
- The time (day, month, year) that the values were established.



Before you can establish the daily operating levels, the Drystar 5302 must be switched on for at least 15 minutes and it must be calibrated as well.

Refer to *'Switching on the Drystar 5302'* on page 30 and *'Performing the calibration procedures'* on page 97 of the Drystar 5302 Reference manual.

Establishing the daily operating reference density levels


This procedure enables you to establish the base line values for:

- Low density
- Mid density
- High density



The densitometer of the Drystar 5302 is calibrated at installation. Authorized service personnel should recalibrate the densitometer annually or after major service or repair.

To establish the daily operating levels, proceed as follows:

- 1 Press the Key-operator key  to enter the Key-operator mode.
- 2 Press the down key seven times, followed by the **ok** key to select 'QC'.

1 Show settings 2 Change settings 3 Print image 4 Save configuration 5 Restore configuration 6 Calibration 7 Installation 8 QC	Key-operator main menu <input type="checkbox"/> quit <input checked="" type="checkbox"/> ok <input type="button" value="A"/> <input type="button" value="T"/> select
---	--

The 'QC' screen appears:

QC Start printing test image to perform: daily / weekly and yearly control	Key-operator QC <input type="checkbox"/> quit <input checked="" type="checkbox"/> ok
--	---

- 3 Press the ok key to continue.

The Drystar 5302 will automatically print the QC Test image.

- 4 After the image is printed, the system will display the optical density values:

QC Internal Density readings Low density :0.26 Mid density :1.35 High density :1.89 (copy on control chart)	Key-operator QC <input checked="" type="checkbox"/> ok
--	--

The displayed values represent the following steps on the test film:

- Low density: the density of the Low density step.
Target: 0.4.
- Mid density: the density value of the Mid density step.
Target: 1.2.
- High density: the density value of the High density step.
Target: 2.0.



If the mid density value does not meet or exceeds the recommended values, the reason must be found and the problem solved before any further clinical films can be printed.

Refer to *'Preventive maintenance schedule'* on page 59 and *'Maintaining image quality and resolving image quality problems'* on page 173 of the Drystar 5302 Reference manual, or call your local Agfa service organization.

- 5 Record the density levels on the Drystar 5302 Chart 1 ("Determination of the operating levels"). Refer to *'Quality Control Charts'* on page 75.
- 6 Press the ok key. The following screen is displayed:

QC	Key-operator QC
Proceed with the QC procedure as stated in the User manual	<input checked="" type="checkbox"/> ok

- 7 Press the ok key to return to the main menu.
- 8 Repeat 1 steps through 7 once a day for five consecutive days, as indicated on the Drystar 5302 Chart 1.
- 9 Calculate the average value of the densities from the five images. These values represent operating levels, or aim values, for each density.
- 10 Record the respective aim (average) values as the 'Operating levels' on the Drystar 5302 Charts 2a and 2b ('daily Drystar 5302 control chart'). Refer to *'Quality Control Charts'* on page 75.

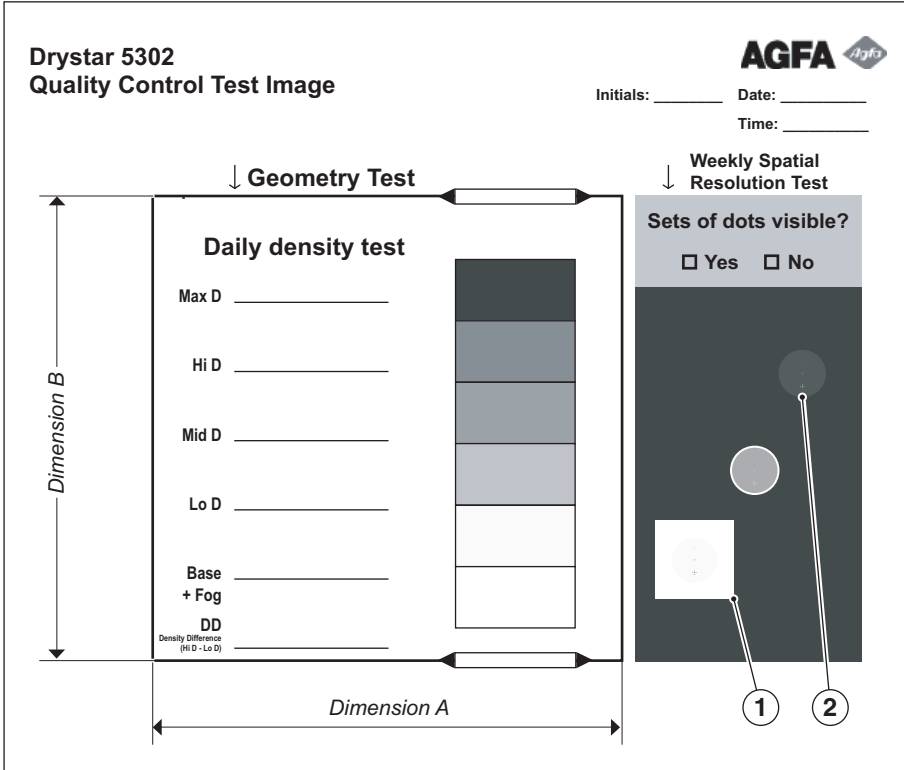
The calculated 'Operating levels' should be as following:

Operating Level	Value (according IEC 1223-2-4 or beter)
Low density	0.4 ± 0.05
Mid density	1.2 ± 0.15
High density	2.0 ± 0.2

- 11 These charts will be used for the daily quality test. For more information, refer to *'Performing the daily QC test'* on page 55.

Establishing the image geometry reference values

- Print the QC test image or use the previously printed test image.
You should obtain an image looking like this (without the dimensions A and B):
QC test image



- To determine the reference values for geometry, measure the dimensions A and B of the geometric square on the test image.



Make sure to measure distance A from the left edge of the left line to the right edge of the right line and distance B from the upper edge of the upper line to the lower edge of the lower line.

We strongly recommend using a 30 cm (12-inch) machinist scale with 0.5 mm divisions (1/64 inch).

- 3 Record these values as reference dimensions A ref and B ref on the Drystar 5302 Chart 4 ('Drystar 5302 Geometric Consistency Control Chart'). Refer to *'Quality Control Charts'* on page 75.

These charts will be used for the annual quality test. For more information, refer to *'Performing the Annual QC tests'* on page 58.

- 4 Save this film for future reference.

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Verifying Acceptable Spatial Resolution, Artifact Levels and Low Contrast Visibility



Good viewing conditions are important for the correct interpretation of both diagnostic and test images. Make sure that the lightbox intensity (luminance) is between 2000 and 4000 cd/m² (4500 and 6500 °K). Use a magnifying glass and use shutters to collimate. Make sure the ambient light is low.

- 1 Print the QC Test image or use the previously printed QC Test image used to establish the daily operating density levels.
- 2 Visually check the QC test image for artifacts: no significant disturbing artifacts should be visible.
- 3 Check the spatial resolution in each of the three ovals. Within each oval there are three groups, each having five dots. All five dots of each group must be visible with a magnifying glass. The smallest cluster of 5 dots are only visible if the viewing conditions are good.
- 4 Record these values at the top of the Drystar 5302 Chart 3 (Drystar 5302 Artifacts and Spatial Resolution Control Chart). Refer to *'Quality Control Charts'* on page 75.
- 5 Check the Low Contrast Visibility at both the high (100 / 95%) and low end (0 / 5%) of the density scale. You should be able to see the circle in the square (refer to item 1 on the *'QC test image'* on page 52) and the upper circle (refer to item 2 on the *'QC test image'* on page 52).
- 6 These charts will be used for the weekly quality test. For more information, refer to *'Performing the Weekly QC tests'* on page 57.



In case of significant artifacts or insufficient spatial resolution, the reason must be found and the problem solved before any further clinical films can be printed.

Refer to *'Preventive maintenance schedule'* on page 59 and *'Maintaining image quality and resolving image quality problems'* on page 173 of the Drystar 5302 Reference manual, or call your local Agfa service organization.

Performing quality control (QC) tests

The following procedures must be performed daily, weekly or annually as indicated.


The reason for performing quality control tests is to determine if any significant image quality variation or deterioration has occurred which may require corrective action. Comparing the results of the tests with the reference values previously established does this.

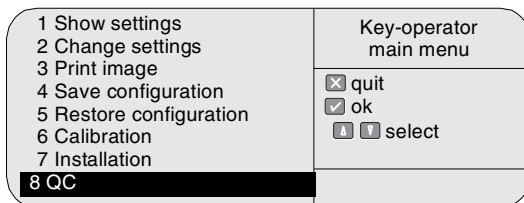
This procedure allows the operator to take the necessary preventive actions before any image quality loss can take place.

Performing the daily QC test

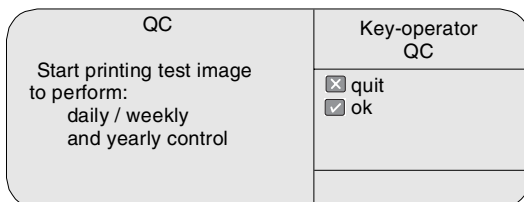


This test must be performed every day before any clinical film can be processed.

- 1 Turn on the Drystar 5302 and wait at least for 15 minutes. Refer to [‘Switching on the Drystar 5302’](#) on page 30.
- 2 Press the Key-operator  key to enter the Key-operator mode.
- 3 Press the down key seven times, followed by the ok key to select ‘QC’.



The ‘QC’ screen appears:



- 4 Press the ok key to continue.

The Drystar 5302 will automatically print the QC Test image.

After the image is printed, the system will display the optical density values:

QC	Key-operator QC
Internal Density readings	
Low density :0.19	<input checked="" type="checkbox"/> ok
Mid density :1.25	
High density: 1.78 (copy on control chart)	

- Record the density values on the Drystar 5302 Charts 2A and 2B (Drystar 5302 Daily Density Control Chart'). Also record the date and time of the test on the charts and on the QC test images. Refer to *'Quality Control Charts'* on page 75.
- Press the ok key. The following screen is displayed:

QC	Key-operator QC
Proceed with the QC procedure as stated in the User manual	<input checked="" type="checkbox"/> ok

- Press the ok key to return to the main menu.



In case the measure results are not within the aim values, the reason for the unacceptable density variations must be identified and resolved before any further clinical films can be processed. This may include repeating the film calibration procedure.

For possible causes of non-compliance and the respective actions, refer to *'Preventive maintenance schedule'* on page 59 and *'Maintaining image quality and resolving image quality problems'* on page 173 of the Drystar 5302 Reference manual.

Performing the Weekly QC tests

Spatial Resolution, Artifact Test and Low Contrast Visibility

To identify artifacts and verify spatial resolution you must perform the following test weekly or as needed for troubleshooting image quality problems.



Good viewing conditions are important for the correct interpretation of both diagnostic and test images. Make sure that the lightbox intensity (luminance) is between 2000 and 4000 cd/m² (4500 and 6500 °K). Use a magnifying glass and use shutters to collimate. Make sure the ambient light is low.

- 1 Check the QC test image visually for artifacts: no significant disturbing artifacts should be visible.
- 2 Check the spatial resolution.
The test film also shows three squares which each contains an oval. These 3 ovals contain 3 groups, each having 5 dots. All five dots of each group must be visible with a magnifying glass. The smallest cluster of 5 dots are only visible if the viewing conditions are good.
- 3 Check the Low Contrast Visibility at both the high (100 / 95%) and low end (0 / 5%) of the density scale. You should be able to see the circle in the square (refer to item 1 on the '*QC test image*' on page 52) and the upper circle (refer to item 2 on the '*QC test image*' on page 52).
- 4 Record these values on the Drystar 5302 Chart 3 (Drystar 5302 Artifacts and Spatial Resolution Control Chart).



In case of significant artifacts, insufficient spatial resolution or failure of any other recommended QC tests, the cause of the problem must be identified, and corrective action must be taken before the Drystar 5302 can be used for any further clinical imaging.

Refer to '*Preventive maintenance schedule*' on page 59 and '*Maintaining image quality and resolving image quality problems*' on page 173 of the Drystar 5302 Reference manual, or call your local Agfa service organization for assistance.

Performing the Annual QC tests

Geometric Consistency Test

To be able to notice fluctuations in image size and aspect ratio, you must perform this procedure once a year.

- 1 First, perform the daily test.
- 2 Use the QC test image of the weekly test and measure the dimensions A and B of the geometric square. Refer to *'Establishing the image geometry reference values'* on page 52.



Make sure to measure distance A from the left edge of the left line to the right edge of the right line and distance B from the upper edge of the upper line to the lower edge of the lower line.

We strongly recommend using a 30 cm (12-inch) machinist scale with 0.5 mm divisions (1/64 inch).

- 3 Record these values as measured dimensions A and B on Chart 4 ('Drystar 5302 Geometric Consistency Control Chart').
- 4 Compare the measured A and B dimensions with the reference dimension values, A_{ref} and B_{ref} on the Drystar 5302 Chart 4 ('Drystar 5302 Geometric Consistency Control Chart').

The differences between measured dimensions of A and B and the reference values A_{ref} and B_{ref} should be less than or equal to 1.0%.

- 5 Check for image distortion.
- 6 Calculate the aspect ratio by dividing A by B.

The result must be 1 ± 0.01



If the image size or distortion values are outside of limits, contact Agfa service to resolve the problem.

Preventive maintenance schedule

The Drystar 5302 is designed for trouble-free service. Maintenance and cleaning involve only some minor user tasks. Refer to the following pages for the appropriate cleaning procedure.

Interval	What to do?	Page
Ad hoc	<i>'Cleaning the exterior'</i>	60
When image quality tends to degrade. An appropriate warning message is displayed.	<i>'Cleaning the print head'</i>	61

Safety guidelines



To prevent damage to the printer while performing maintenance, observe the following safety precautions:

- Do not lubricate the printer.
- Do not attempt to disassemble the printer.
- Do not touch the resistor line of the print head.
- Always switch off the Drystar 5302 and disconnect the power cord from the outlet before carrying out any maintenance work inside the printer.



Film jam removal or cleaning the printer head can be done without switching the power off. Nevertheless, care should be taken and the 'Safety precautions' on page 9 should be respected.

Cleaning the exterior

- 1 Switch off the Drystar 5302 by following the procedure as described in *'Switching off the Drystar 5302'* on page 32.
- 2 Remove the power plug from the socket.
- 3 Wipe the exterior of the printer with a clean, soft, damp cloth.
Use a mild soap or detergent if required but never use an ammonia-based cleaner. Be careful not to get any liquid in the power cord port.
- 4 Plug in the printer and switch it on by following the procedure as described in *'Switching on the Drystar 5302'* on page 30.

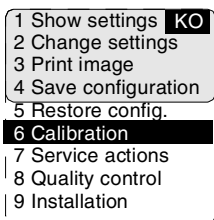
Cleaning the print head



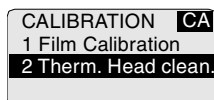
Print head cleaning must be done when image quality problems occur.

To clean the print head:

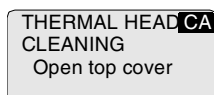
- 1 Press the Key-operator key to enter the key-operator mode.
- 2 On the key-operator main menu, press the Down key five times, followed by the Confirm key to select 'Calibration'.



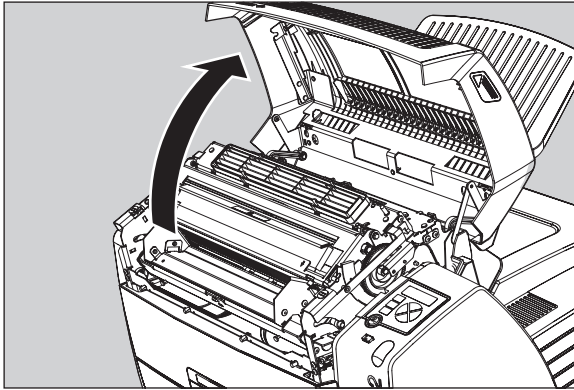
- 3 On the Calibration menu, press the Down key, followed by the Confirm key to select 'Therm. Head clean.'.



- 4 The 'Thermal head cleaning' screen will give step by step instructions on what to do:



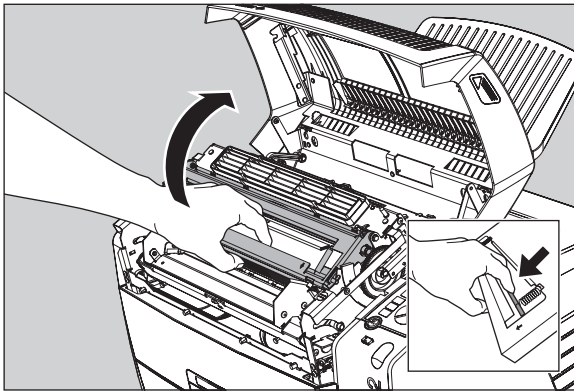
- 5 Open the top cover.



- 6 As soon as the top cover is opened, the 'Thermal head cleaning' screen continues giving the following instructions:

THERMAL HEAD CA
CLEANING
 Clean thermal head
 Close top cover

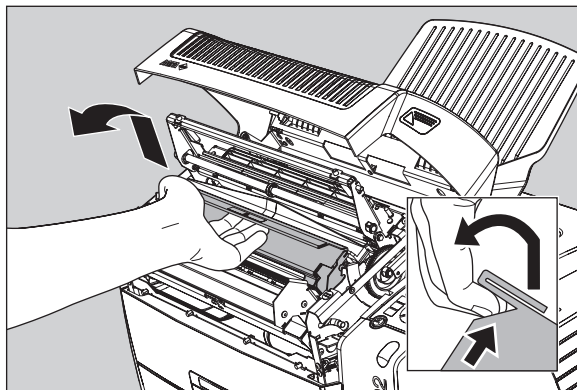
- 7 Open the hold-down bracket.



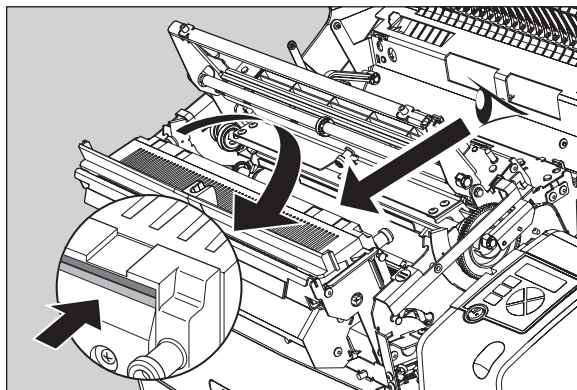
- 8 Open the print head unit.



The print head unit can be warm.

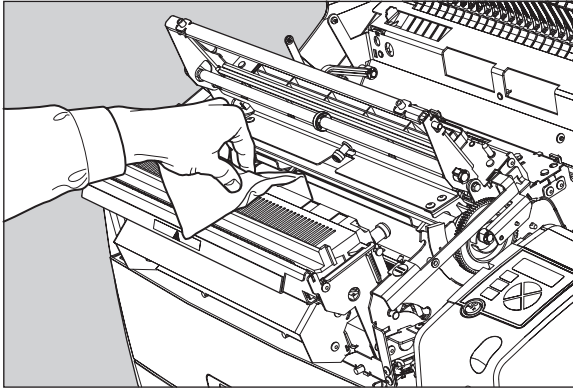


- 9 Locate and check on sight the print head resistor line.




Be careful not to touch the print head resistor line with your fingers.

10 Clean the print head resistor line.




Gently pass over the resistor line a few times with a lint free cloth, slightly moistened with Isopropyl alcohol or Ethanol. **Do this only in one direction, i.e. from left to right, without lifting the cloth.**

 *Do not apply any pressure on the print head because this pressure may cause damage on the interconnections underneath the print head.*

11 Close the print head unit, the hold-down bracket and finally the top cover.

After you have cleaned the print head resistor line and you have closed the top cover, the printer will restart automatically.

 *If residue dust is present as part of the cleaning procedure it will disappear after a few prints.*

Troubleshooting checklist

The table below lists some general problems which can occur when working with the Drystar 5302.



Refer to the appropriate pages of the Drystar 5302 Reference manual.

- The Drystar 5302 does not print.

Action	Refer to	Page (Ref. Man.)
Check the Drystar 5302	<i>'Checking the status indicator LED'</i>	157
	<i>'Checking the connections'</i>	158
	<i>'Checking the print queue'</i>	160
Remove a jammed film	<i>'Film input tray jams'</i>	162
	<i>'Film transport jams (clearing from the top)'</i>	165
	<i>'Unauthorized opening of the printer'</i>	167
Resolve error messages	<i>'Checking error messages'</i>	159
Handle CF-card errors	<i>'Checking CF-card error messages'</i>	159
Resolve film identification problems	<i>'The Film Identification tag is not readable'</i>	168

- The quality of the printed images is bad (printing remains possible).

Action	Refer to	Page (Ref. Man.)
Resolve film quality problems	<i>'Persistent white dots or lines appear in the transport direction'</i>	175
Resolve warning messages	<i>'Maintenance messages'</i>	177



Have electrical or mechanical defects repaired by skilled personnel only!

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Appendix


A


Equipment information
sheet

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Specifications

Product description	
Type of product	Printer
Commercial name	Drystar 5302
Original seller/manufacturer	Agfa-Gevaert N.V.
Labelling	
TÜV-, cULus-Certification Mark, CE-marking	
CCC Mark	
Dimensions	
Dimensions (approx. values in cm)	<ul style="list-style-type: none"> • Unpacked: width tbd, length tbd, height tbd • Packed: width tbd, length tbd, height tbd
Weight	<ul style="list-style-type: none"> • Unpacked: approx. 90 kg • Packed: approx. 120 kg
RAM memory	512 Mb
Mass storage media (internal/external)	Compact Flash Type II
Electrical connection	
Operating voltage	100-127 V; 220-240 V AC
No external mains fuses	
Mains frequency	50/60 Hz

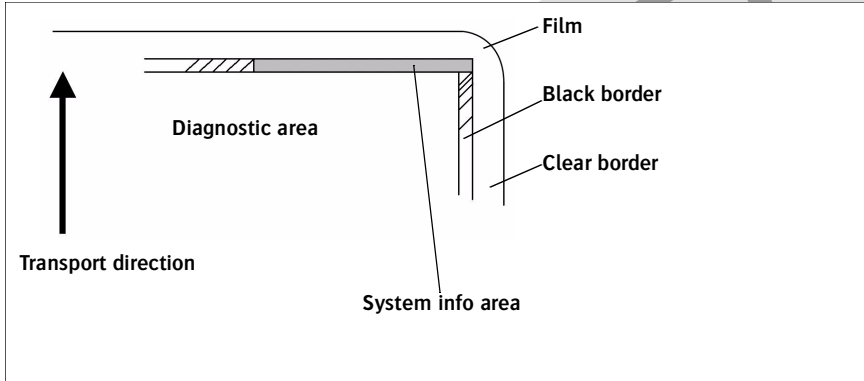
Network connectivity	
Ethernet / connectors	RJ45 twisted pair for 10/100Base-TX; Serial RS232 connection
Network protocols (TCP/IP services)	FTP, Telnet, HTTP, SMTP
Image formats	DICOM (Default) TIFF
Postscript	Not available
Power consumption - heat dissipation	
During operation	250 W- 900 kJ/h
In standby	70 W - 252 kJ/h
Peak power (absolute max. rating)	530 W - 1908 kJ/h
Protection against	
Electrical shocks	Class 1 (grounded)
Ingress of water	IPXØ
Environmental conditions (operation)	
Room temperature	Between +15°C and +30°C
Relative humidity	Between 20% and 75% <u>Note:</u> Films may not become wet!
Atmospheric pressure	70 kPa - 106 kPa
Environmental storage conditions	
	<i>Climate conditions for storage are in accordance with EN60721-3-1-class 1K4.</i>
Room temperature	Between -25°C and 55°C (storage)
Relative humidity	Between 10% and 100%
Absolute humidity	Between 0.1 g/m ³ and 35 g/m ³
Rate of change of temperature	1°C/min
Atmospheric pressure	70 kPa - 106 kPa

Environmental transport conditions	
	<i>Climate conditions for transport are in accordance with EN60721-3-2-class 2K4.</i>
Temperature	Between -40°C and 70°C (transport)
Relative humidity not combined with rapid temperature changes	95% at +45°C
Noise emission (method of measurement in accordance with DIN 45635 part 19)	
During operation	Max. 64 dBA
In standby	Max. 54 dBA
Consumables	
Drystar DT 2B and Drystar DT 2C	8x10", 10x12", 11x14", 14x14" and 14x17" film sizes
Print technology	
Direct thermal printing	
Reliability	
Estimated product life (if regularly serviced and maintained according to Agfa instructions)	> 5 years and > 125,000 films
Service interventions	Max. 2 interventions / 3 years
Earthquake (standard)	Meets the CA requirements

Imaging Array - Diagnostic area				
Film size 8x10"	8" dimensions in pixels	8" dimensions in mm	10" dimensions in pixels	10" dimensions in mm
Diagnostic area	2375.76	188.64	3072.24	243.94
Film size 10x12"	10" dimensions in pixels	10" dimensions in mm	12" dimensions in pixels	12" dimensions in mm
Diagnostic area	3072.24	243.94	3652.84	290.04
Film size 11x14"	11" dimensions in pixels	11" dimensions in mm	14" dimensions in pixels	14" dimensions in mm
Diagnostic area	3348.06	265.84	4358.13	346.04
Film size 14x14"	14" dimensions in pixels	14" dimensions in mm	14" dimensions in pixels	14" dimensions in mm
Diagnostic area	4358.13	346.04	4302.72	341.64
Film size 14x17"	14" dimensions in pixels	14" dimensions in mm	17" dimensions in pixels	17" dimensions in mm
Diagnostic area	4358.13	346.04	5232.19	415.44

Viewing the System info area on a film

On the top right corner of each film, a “System info” area will be printed. This info can only be read using a magnifying glass.



The System info area contains info about:

- Printer: (serial number, densitometer info, film counts, software version, etc.),
- Controller (image source, date, time, etc.).

For more detailed information, refer to the Drystar 5302 Service documentation.

Options and accessories

Mobile / Earthquake provisions

Hardware

The OPTIONAL mobile/earthquake installation kit allows you to use the Drystar 5302 in a van, or to use it in unstable environment.

It contains the necessary equipment to fix the printer onto a table and has provisions for easy service access.

The mobile/earthquake installation kit is delivered with the necessary mounting instructions.

Software

No additional software for mobile/earthquake use is required.

ABC code

ABC code: tbd

Connectivity

Connectivity with Agfa equipment

- Connected via VIPS or CR QS
 - ADC Compact
 - ADC Compact Plus
 - ADC Solo
 - CR 25.0
 - CR 75.0
- ADR Thorax
- Impax
- MG3000
- Paxport
- MULTIFLEX



For more information, contact your Agfa representative.

Connectivity with non-Agfa equipment

Drystar 5302 is a Dicom printer and can therefore be connected to all modalities supporting Dicom. Although, to ensure optimal operation and image quality, Agfa has made the effort to test and release the Drystar 5302 with most of modalities on the market. For the complete list or if you want to check on a specific modality, contact your Agfa representative.

Appendix

B

Quality Control Charts

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Drystar 5302: Determination of Operating Levels

Imager Type: _____ Serial #: _____ Date _____
 Film Type: _____ Emulsion #: _____
 Densitometer Internal: _____ (default selection)
 External: Type _____ Serial #: _____

Step 1: Print QC Test images on five consecutive days. Record the optical densities measurements in the tables below. After five days, average the values to determine the operating (aim) levels for each of the parameters.

	Day 1	Day 2	Day 3	Day 4	Day 5
Month					
Day					
Initials					

Low Density					
<i>Average of 5 Values = operating (aim) level "Low Density"</i>					

Mid Density					
<i>Average of 5 Values = operating (aim) level "Mid Density"</i>					

High Density					
<i>Average of 5 Values = operating (aim) level "High Density"</i>					

Step 2: Copy the operating (aim) levels to Charts 2A/B ('Daily Density Control Chart')

Chart 2A

Drystar 5302 Daily Density Control Chart

Imager Type: _____ Serial #: _____ Film Type: _____ Emul #: _____

Densitometer Internal: _____ (default selection)

External: Type _____ Serial #: _____

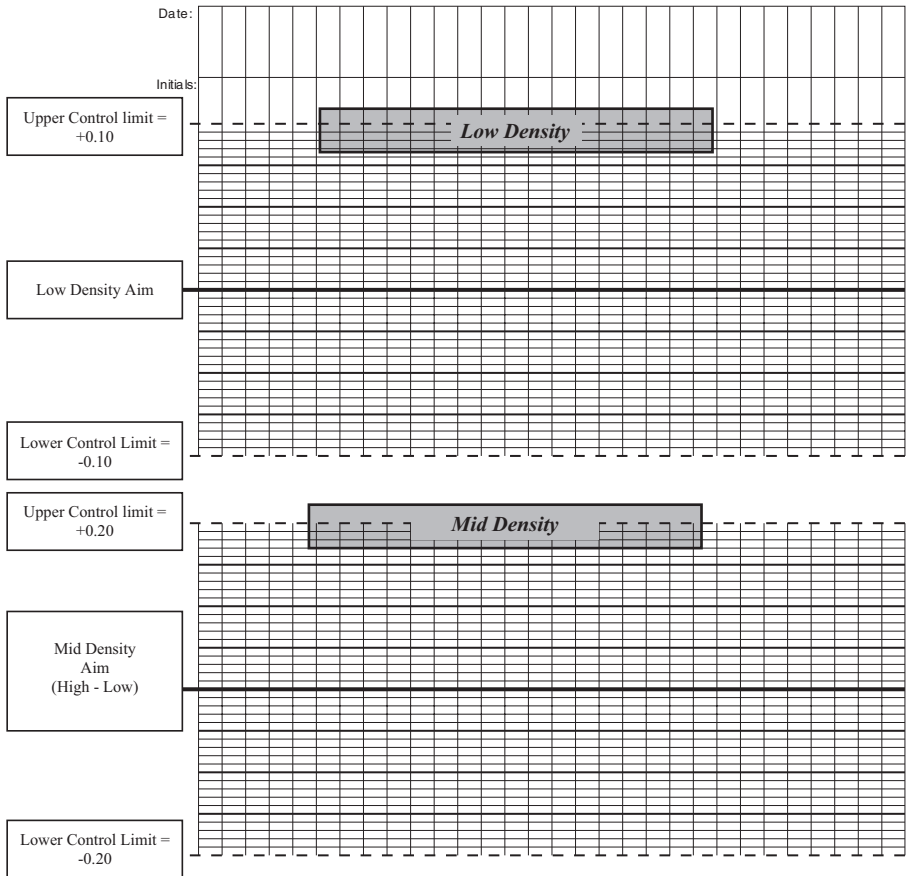


Chart 2B

Drystar 5302 Daily Density Control Chart

Imager Type: _____ Serial #: _____ Film Type: _____ Emul #: _____
Densitometer Internal: _____ (default selection)
External: Type _____ Serial #: _____

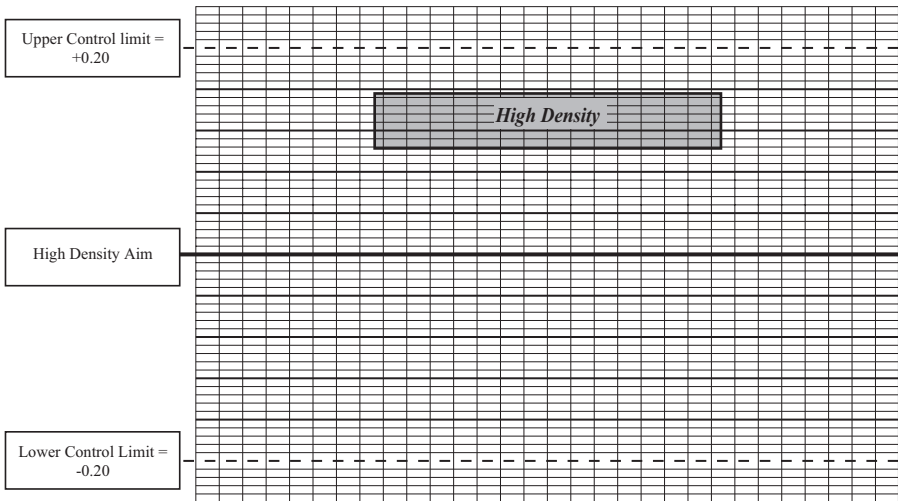


Chart 3

Drystar 5302 Artifacts and Spatial Resolution Control Chart

Test Frequency: Weekly

Drystar 5302 Serial # _____

Initial Reference Test Date	
Initial Reference Artifacts	
Initial Reference Dot Visibility	
Initial Reference Low Contrast	

Month						
Day						
Artifacts						
Visibility of all Dots						
Low Contrast Visibility						

Month						
Day						
Artifacts						
Visibility of all Dots						
Low Contrast Visibility						

Month						
Day						
Artifacts						
Visibility of all Dots						
Low Contrast Visibility						

Month						
Day						
Artifacts						
Visibility of all Dots						
Low Contrast Visibility						

Month						
Day						
Artifacts						
Visibility of all Dots						
Low Contrast Visibility						



Chart 4

Drystar 5302 Geometric Consistency Control Chart

Test Frequency: Annually or as required

Drystar 5302 Serial # _____

Reference Dimensions		Measured Dimensions		Consistency		Aspect Ratio	
Date:		Date:					
A _{ref}		A:		A/A _{ref}		A/B	
B _{ref}		B:		B/B _{ref}			

Reference Dimensions		Measured Dimensions		Consistency		Aspect Ratio	
Date:		Date:					
A _{ref}		A:		A/A _{ref}		A/B	
B _{ref}		B:		B/B _{ref}			

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