

October 2022

# OPEX®

# STS™

DIGITAL MAIL

## STS™ Operator Manual

9296900M-EN

Revision 22-01

Original Instructions



STS™

CE



### WARNING

Read this manual thoroughly before attempting to operate or service this equipment. Keep a current copy for your reference.

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## Contacting OPEX

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### **For technical support:**

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Please have the model name and serial number of the product ready (see [“Contacting OPEX Service” on page 66](#) for more information).

### **For other inquiries:**

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## 0.1. EC Declaration of Conformity

### Declaration of Conformity

Application of Council Directive(s): 2014/35/EU; 2014/30/EU; 2012/119/EU;  
2011/65/EU

Standard(s) to which conformity is declared: EN 60950-1:2006;  
IEC 60950-1:2005(Second Edition) + Am1:2009 + Am 2:2013;  
IEC CISPR22:2005+A1:2005+A2:2006(E); IEC CISPR24:2008+A1:2011;  
BS EN 50581:2012

Manufacture's Name: OPEX Corporation

Manufacture's Address: 835 Lancer Drive  
Moorestown, New Jersey 08057- 4225  
United States of America

Importer's Name: OPEX Corporation

Importer's Address: Parc Technopolis – ZA de Courtaboeuf  
3 avenue du Canada  
Les Ulis, France

Type of Equipment: Document Scanner

Model No. : Falcon

Serial No. : \_\_\_\_\_

Year of Manufacture: \_\_\_\_\_

I, the undersigned, hereby declare that the equipment specified above conforms to the above Directive(s) and Standard(s).

Place: Moorestown, New Jersey USA

  
\_\_\_\_\_  
(Signature)

Date: August 26, 2016

H. Scott Maurer  
\_\_\_\_\_  
(Full Name)

President, OPEX International  
\_\_\_\_\_  
(Position)



Ref. Certif. No.  
US/6554/ITS-M1

**IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME**

**CB TEST CERTIFICATE**

Product	Document Scanner
Name and address of the applicant	OPEX Corp. 305 Commerce Drive Moorestown, NJ 08057 United States of America
Name and address of the manufacturer	OPEX Corp. 305 Commerce Drive Moorestown, NJ 08057 United States of America
Name and address of the factory	<input type="checkbox"/> Additional information on page 2 OPEX Corporation 853 Lancer Drive Moorestown, NJ 08057 United States of America
<i>Note: When more than one factory, please report on page 2</i>	
Ratings and principal characteristics	Falcon 120Vac, 1.9A, 60hz 220-240Vac, .9A 50hz Falcon V 120Vac, 2.2A, 60hz 220-240Vac, 1.2A 50hz Falcon V+ 120Vac, 2.2A, 60hz 220-240Vac, 1.2A 50hz Falcon + 120Vac, 2.2A, 60hz 220-240Vac, 1.2A 50hz
Trademark (if any)	
Customer's Testing Facility (CTF) Stage used	
Model / Type Ref.	Falcon, Falcon V, Falcon V+, Falcon +
Additional information (if necessary may also be reported on page 2)	<input type="checkbox"/> Additional information on page 2 M1: Added model numbers Falcon V+ and Falcon +, Added new alternate power supply Mean Well model RSP-320-36. Original certificate issued: 2/28/17.
A sample of the product was tested and found to be in conformity with	IEC 62368-1:2014 <u>National differences:</u> AT, AU, CA, CH, DE, DK, ES, FI, FR, GB, IE, IT, KR, NL, NO, SE, SI, US
As shown in the Test Report Ref. No. which forms part of this Certificate	102750609BOX-002

This CB Test Certificate is issued by the National Certification Body

Intertek Testing Services N.A., Inc.  
545 E. Algonquin Road, Suite F, Arlington Heights IL 60005, United States of America



Date: 2019-10-23

Signature: John Quigley 

## Document History

Doc Rev	Date	Changes (click blue text to go to that page)
19-00 (beta)	May 29, 2019	Preliminary draft release for compliance testing.
19-01	Aug. 30, 2019	Initial release.
19-02	Dec. 5, 2019	<p><a href="#">Page 24</a> - STS can also be used with Falcon+ scanners. Added a note after the first paragraph.</p> <p><a href="#">Page 41</a> - added a sentence to confirm STS should be powered up before the Falcon.</p>
21-01	July 2021	<p><a href="#">Page 1</a> - Updated OPEX logo</p> <p><a href="#">Page 2</a> - corrected contact information</p> <p><a href="#">Page 3</a> - added DoC section</p> <p><a href="#">Page 51</a> - added section on proper care for ink cartridge</p> <p><a href="#">page 67</a> - streamlined glossary to only include terms mentioned in manual</p> <p><a href="#">Page 69</a> - updated “About OPEX Corporation” text</p>
22-01	October 13, 2022	<p>A few spelling/grammatical corrections.</p> <p><a href="#">Page 2</a> - updated contact information</p> <p><a href="#">Page 35</a>, <a href="#">page 57</a> - Added warning that the printer may activate when printer cover is open.</p>

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## 1.1. Introduction

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The information provided in this chapter is intended to educate you on various safety issues regarding the operation and maintenance of the OPEX equipment described in this manual.

This chapter provides an explanation of the safety conventions used throughout this manual, as well as safety guidelines to be observed when working with this equipment.



### **WARNING**

Read this chapter thoroughly before working with this equipment.

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## 1.2. Safety conventions used in this manual

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This manual uses the following conventions to alert you about safety hazards associated with certain procedures and situations. Please be aware of these conventions when reading the manual and operating the equipment:



### **DANGER**

Indicates a hazardous situation that, if not avoided, will result in death or severe injury. The use of this signal word is limited to the most extreme situations.



### **WARNING**

Indicates a hazardous situation that, if not avoided, could result in death or serious injury.



### **CAUTION**

Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.

### **NOTICE**

Indicates information considered important, but not hazard related (e.g. messages relating to property damage).

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## 1.3. Safety Guidelines

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This section provides safety guidelines to be observed when working with this equipment.



### WARNING

Follow these safety guidelines whenever operating or maintaining the equipment described in this manual.

**Operator training** - Operator training is required prior to performing the procedures described in this manual.

**Keep loose objects away from any exposed, moving parts of the machine** - The moving parts of the STS™, such as the conveyor, can become jammed and/or damaged by foreign objects. Keep hands, hair, loose clothing and jewelry away from the moving parts.

**Conveyor systems** - Do not sit, stand, or travel on any part of the conveyor system.

**Liquids** - Do not set liquids (such as drinks) on the surface that could spill into the machine.

**Electrical safety** - Be careful when working with AC power. Electrical wiring can be hot any time the machine is plugged in. Failure to use caution may result in electric shock or death.

**Machine design** - Do not modify the design or configuration of the equipment without consulting OPEX or your authorized representative.

**Machine Maintenance** - Machine maintenance, particular operations, and all adjustments, whether mechanical or electrical, shall be carried out by persons authorized to do so in accordance with a safe system of work.

**Do not attempt to clean the machine while it is running** - A cloth (or similar material) should never be used to clean moving parts such as belts or rollers. The use of such material on moving mechanisms can result in damage to the machine or severe personal injury. If a belt, roller, gate or similar part needs to be cleaned, hand-crank the part during cleaning or clean it while stationary.

**Do not use flammable, high pressure, “canned air” to clean dust and debris from the machine.**

**Familiarize yourself with the location(s) of machine Emergency Stop switches -**

The E-Stop switches enable a quick stop of all motors in the machine, in the event of an emergency involving potential personnel injury. Do not use E-Stops for normal stopping. For more on proper operations of the machine, refer to [“Operation” on page 39](#).

**Machine access** - Keep all areas around the machine clear of obstacles.

**Machine Relocation** - Do not move the machine while the power is on. Unplug the machine from the power source first.

**Electrical outlet** - The socket-outlet shall be installed near the equipment and shall be easily accessible.

**Keep away from children** - This equipment is not suitable for use in locations where children are likely to be present.

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## 1.4. Consignes de sécurité - traduction française

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**Formation des opérateurs** - Une formation des opérateurs est nécessaire avant de suivre les procédures décrites dans ce manuel.

**Gardez les objets lâches à l'écart des parties exposées et mobiles de la machine**

- Les parties mobiles du STS™, telles que le convoyeur, peuvent être bloquées et / ou endommagées par des objets étrangers. Gardez les mains, les cheveux, les vêtements lâches et les bijoux loin des pièces mobiles.

**Systèmes de convoyeur** - Ne vous asseyez pas, ne vous tenez pas debout et ne vous déplacez pas sur une partie du système de convoyeur.

**Liquides** - Ne pas mettre de liquides (comme des boissons) sur la surface qui pourrait se répandre dans la machine.

**Sécurité électrique** - Soyez prudent lorsque vous travaillez avec le courant alternatif. Le câblage électrique peut être chaud chaque fois que la machine est branchée. Ne pas faire preuve de prudence peut entraîner un choc électrique ou la mort.

**Conception de la machine** - Ne modifiez pas la conception ou la configuration de l'équipement sans consulter OPEX ou votre représentant autorisé.

**L'entretien des machines** - La maintenance de la machine, les opérations particulières et tous les réglages, qu'ils soient mécaniques ou électriques, doivent être effectués par des personnes autorisées à le faire conformément à un système de travail sûr.

**N'essayez pas de nettoyer la machine pendant son fonctionnement** - Un chiffon (ou un matériau similaire) ne doit jamais être utilisé pour nettoyer les pièces mobiles telles que les courroies ou les rouleaux. L'utilisation d'un tel matériau sur les mécanismes de déplacement peut endommager la machine ou subir des blessures graves. Si une ceinture, un rouleau, une grille ou une pièce similaire doivent être nettoyés, faire manivellez la pièce pendant le nettoyage ou la nettoyer en stationnaire.

**N'utilisez pas d'air comprimé inflammable, à haute pression pour nettoyer la poussière et les débris de la machine.**

**Familiarisez-vous avec l'emplacement de la machine Interrupteurs d'arrêt d'urgence** - Les interrupteurs E-Stop permettent un arrêt rapide de tous les moteurs de la machine en cas d'urgence impliquant un risque de blessure corporelle. Ne pas utiliser les arrêts d'urgence pour un arrêt normal. Pour en savoir plus sur le bon fonctionnement de la machine, voir "Fonctionnement" à la [page 39](#).

**Accès à la machine** - Gardez toutes les zones autour de la machine sans obstacles.

**Relocalisation de la machine** - Ne déplacez pas la machine tant que l'appareil est sous tension. Débranchez d'abord la machine de la source d'alimentation.

**Sortie électrique** - La prise doit être installée à proximité de l'équipement et doit être facilement accessible.

**Tenir à l'écart des enfants** - Cet équipement ne convient pas aux endroits où les enfants sont susceptibles d'être présents.

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## 1.5. Safety Labels

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Labels are used in specific locations on the STS to alert you to certain safety hazards and provide important information about the machine. These labels may appear in various languages or styles depending on the region or country where the machine is operating:

- Bilingual English/Spanish labels for US machines
- Bilingual English/French labels for Canadian machines
- Graphics-only labels for EU and various international machines (no text).

Although they appear different, the locations of these labels are identical.





Follow the safety precautions described by these labels to avoid injury when operating the STS. Failure to follow these precautions may result in severe personal injury or damage to the machine.

### 1.5.0.1. E-Stop ring label

**Location:** Front of machine in two locations (Table 1-1).

**Purpose:** Draws attention to location of Emergency Stop button.

**Table 1-1: E-Stop Ring label**

Label location	Description
	All (8156400) 



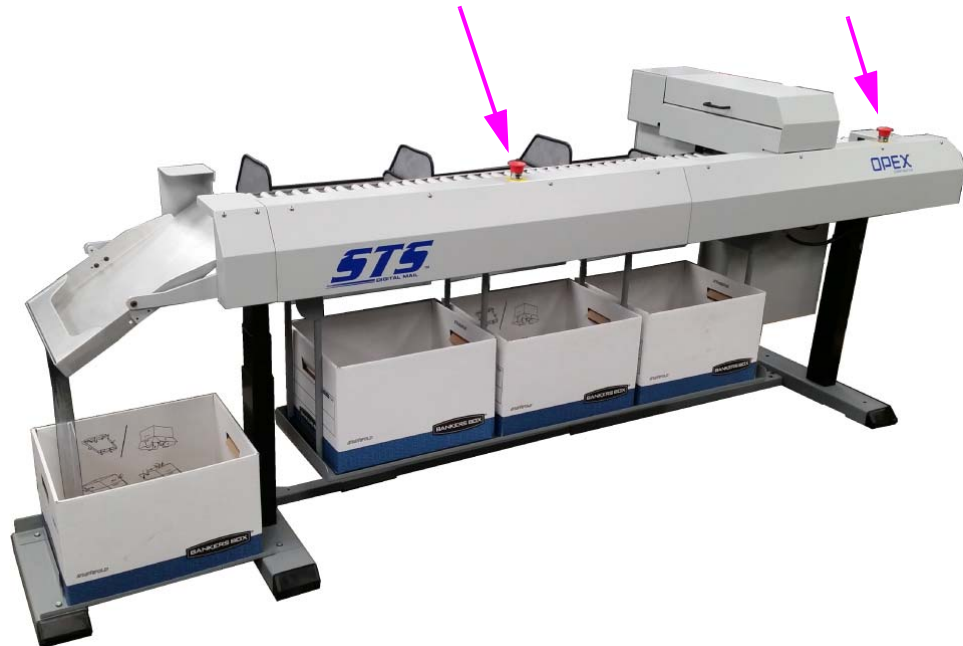
### 1.5.0.2. Tangle Warning

**Location:** Front of the machine next to each E-Stop switch.

**Purpose:** Caution to keep hands, hair, clothing, and loose jewelry away from any exposed, moving parts of the machine. The moving parts of the STS can become jammed and/or damaged by foreign objects (Figure 1-1).



The tangle warning label appears next to each E-Stop switch.



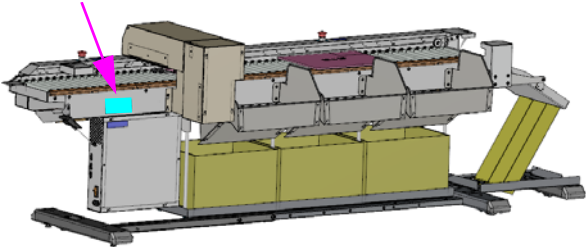


**Figure 1-1: Tangle label**

### 1.5.0.3. Ratings / Serial Number label

**Location:** Back of machine (Table 1-2).

**Purpose:** Identifies product electrical ratings, machine serial number, CE logo.

**Table 1-2: Ratings/Serial Number label**

Label location	Description
	<p style="text-align: center;">US (8189200)</p> <div style="border: 1px solid black; padding: 5px;">  </div> <p style="text-align: center;">EU (8189300)</p> <div style="border: 1px solid black; padding: 5px;">  </div>

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## 1.6. Emergency stops

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For operator safety, the STS™ incorporates Emergency-Stop switches to stop the machine in the event of an emergency.



### WARNING

Emergency stop switches do not remove power from all electrical devices within the STS. Power to other AC devices remains energized after the E-Stop switch is pushed.

The machine has two large, red colored mushroom-shaped Emergency stop (E-stop) switches shown in Figure 1-2. These E-stops can be used to stop the machine in an emergency situation.

*Note: E-Stops should not be used for normal stopping. For more on proper operations of the machine, refer to ["Operation" on page 39](#).*



**Figure 1-2: STS E-Stop locations**

## To restart the machine:

Once an E-Stop has been pressed, an Authorized Employee will perform the following steps to restart the machine:

1. Inspect the machine to determine the cause of the emergency or accidental stoppage.
2. Repair the fault, and verify that the machine is safe to operate.
3. Remove all tools and other materials from the area.
4. Ensure the machine is operationally intact.
5. Notify affected persons that the machine will be restarting.
6. Make sure everyone is safely away from the machine.
7. Pull up on the E-Stop button to deactivate it.
8. Restart the machine from the Run screen.

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## 1.7. Ergonomics

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As in any occupation that requires you to perform the same motion repeatedly during the course of your work, it is important to consider how you perform your task.

### **NOTICE**

Always observe the following guidelines when operating the STS and Falcon series scanner.

Follow the directions for using and adjusting your chair and scanner. Using improper procedure can result in a potentially serious injury. This system has been designed for safe operation by over 95% of the user population. Operation by individuals with limited reach capability or who cannot follow the suggestions listed should be avoided or limited in duration.

To reduce possible risks, we strongly urge you to follow these suggestions:

- Maintain an upright body posture. Avoid the tendency to slump in your chair. The angle between your torso and thighs should always be close to 90 degrees.
- Adjust the seat height on your chair or the height of the scanner so that your elbow is approximately even with the top of the work surface when your arms are near your sides and your feet are flat on the floor.
- Adjust your chair position to allow your torso to touch the front edge of the scanner work surface. Chairs with arm rests that prevent this body position should not be used.
- If the touchscreen is used frequently during processing, adjust the screen's position to minimize your reach movements to the frequently touched areas.
- Your position should allow you to comfortably reach the frequent work pick-up area(s) and the frequently touched areas of the screen without extending either arm fully or changing your posture.
- Occasionally change the angle of your posture and, if possible, vary your tasks to create short breaks from the most repetitive motions.
- If possible, avoid operating the machine for longer than a single 10-hour shift.

While no suggestions can guarantee completely against work-related injuries, you will certainly increase your comfort and safety while operating the STS and Falcon series scanner if you put these suggestions into practice. This system has been designed with you in mind. If it is operated correctly, you should find your work experience comfortable and enjoyable.

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# 2. Introduction

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## 2.1. Overview

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The OPEX® STS™ is the latest addition to OPEX Corporation's Falcon series one-step document scanning workstations. And with a Rapid Extraction Desk (RED), it can address the needs of today's digital mail rooms. The STS, when combined with a Falcon\* series scanner, allows for mail rooms to Sort envelopes, Track items, and Scan content based on the end-user's decisions. Unlike typical mail room solutions, the Falcon STS enables the mail center to filter unwanted mail and disposition the remaining envelopes based on end-user authorization, delivering only the necessary confidential and private mail, as specified by businesses and their employees.

*\* The STS is fully compatible with the Falcon+ series scanners. Throughout this documentation, all of the Falcon and Falcon+ series machines will be referred to simply as "Falcon."*

The Falcon STS provides a multi-functional digital mail platform that allows envelope imaging, sorting, and content scanning on one device. The process is simple:

### 2.1.1. Envelope Imaging and Envelope Sorting

#### Envelope Imaging

1. Envelopes are scanned on the Falcon series scanner.
2. The Falcon imagers identify the best location on the envelope for the STS to print a barcode.
3. A barcode is printed in the area defined by the Falcon imagers.
4. Envelopes are transferred to bins awaiting end-user decisions.
5. Images and data are available for the digital mail solution's processes and email notifications.
6. The end-user receives envelope images via email and selects how each envelope should be handled in the next step (examples: trash, return, deliver, open & scan contents of the envelope).



## **Envelope Sorting**

1. Envelopes are drop-fed through the Falcon series scanner again.
2. Falcon reads the barcode.
3. STS associates the barcode with the customer and their sort decision.
4. The Falcon imagers again identify the best location on the envelope for the STS to print the sorting decision.
5. STS sorts mail to individual bins based on the end-user or company's authorization.

### **2.1.2. Envelope Extraction / Content Scanning**

Using the OPEX Falcon RED, authorized “open & scan” envelopes can be opened and contents scanned in a single step. Digital content is now available for delivery to the end-user's email.

The Falcon series STS is one machine with multiple machine functions. It pairs OPEX's innovative scanning technology with mail marking and sorting capabilities, to provide a one-stop shop for digital mail rooms.

A typical configuration will consist of a Falcon scanner, a RED to open envelopes and the STS sorter. The system will also generally require ScanLink and barcodes to be available for communication to the back-end system.

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## 2.2. Workflow - Pass 1

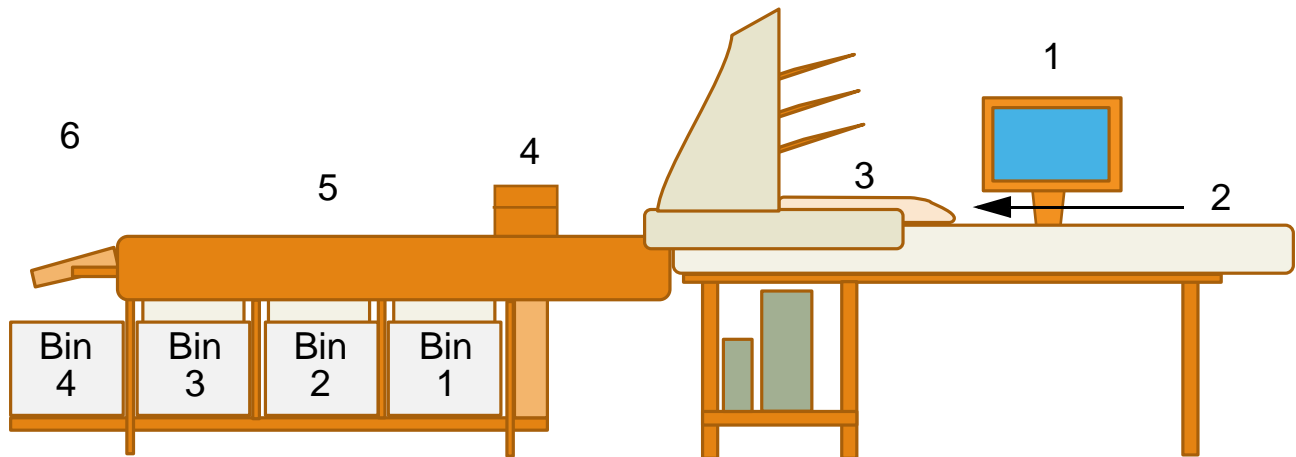
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The first pass allows incoming mail to be scanned and barcoded. The barcode, and a human readable version of the barcode, are printed on the piece in an available 'clear zone.' The first pass will generally run with all mail going from input tub(s) to one or more output tubs. It doesn't necessarily have to be "one" output tub - it could be multiple tubs depending on how much mail was processed (the mail can waterfall into another bin).

Once the mail is scanned, barcodes have been applied to all pieces, and the batch has been closed and provided to the back-end application, Pass 1 is completed.

For all of the steps in this procedure, refer to Figure 2-1.



**Figure 2-1: Pass 1 workflow diagram**

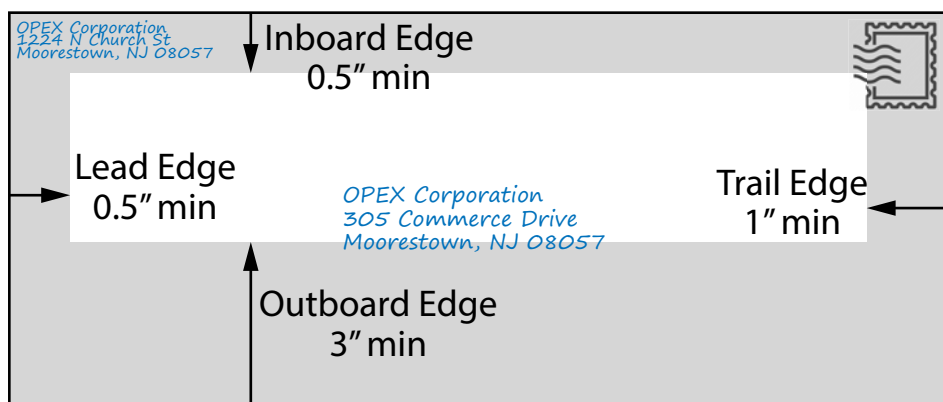
1. The first pass job is selected on the Falcon series scanner. This job identifies the destination output bin which could be bin 1, 2, 3 or 4 (bin 4 is used in the example in Figure 2-1), and the Bin ID is captured.
2. Mail thin enough to be fed through the Falcon is dropped and scanned.  
**Note:** *The maximum envelope thickness specification for the STS is 0.188" (0.477 cm)*
3. The Falcon-series imagers locate an area to print on the envelope.
4. The print head prints the barcode and the human readable text.

5. The conveyor rollers move the mail to the destination bin.
6. The completed batch is sent to the back-end software. The batch includes bin ID of destination bin, images and the barcode values for each piece. The destination bin will then contain mail that has been captured into the back-end system. **Mail in Pass 1 contains no decisions on where to sort.**

## 2.2.1. More on the Pass 1 job

- The Pass 1 job will be identified as an STS job type. The job type will automatically switch the Falcon from scanning mode to sorter mode, set the new timings for the sensors on the ‘longer paper path’, and make the sorter printer the destination for audit trail print.
- Entering a tub ID is an optional step which can be done anytime before closing the batch. Tub IDs for initial version can be RefIDs or indexes.
- For mail that doesn’t contain a white clear zone\* or if the mail is a dark color, the operator can apply a white label to the envelope, so that a barcode can be printed on the mail.

\* A “white clear zone” in the STS is defined as an area on the envelope that is 0.8” height by 2” long, located a minimum of 0.5” from the lead edge, a minimum of 3” from the outboard edge, a minimum of 0.5” from the inboard edge, and a minimum of 1” from the trail edge (example in Figure 2-2).



**Figure 2-2: White clear zone - location dimensions**

- Mail that is ‘too thick’ (greater than 0.188”) will be pulled aside and handled by a process directed by the back-end system, such as using the external capture device.
- The first pass is completed when all pieces have been barcoded and the batch is closed. The batch should contain the bin ID where the pieces are collected, the images of the front/back of envelope, the barcode value for each piece and the count of pieces.
- The back-end system will take a pass1 job, OCR the images, and create a database of sender, receiver, and barcode value. This becomes the tracking mechanism for all processes that follow. The back-end system will then send an email to each recipient that shows the image of the front of the envelope, and asks them to decide on the next step (for example: deliver the piece, open/scan and electronically deliver the piece, discard the piece, forward the piece to someone else).
- After receiving an image of their mail, operators have an opportunity to provide their decision, then bin ID will be rescanned and processed as a Pass 2 job, which is detailed in the next section.

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## 2.3. Workflow - Pass 2

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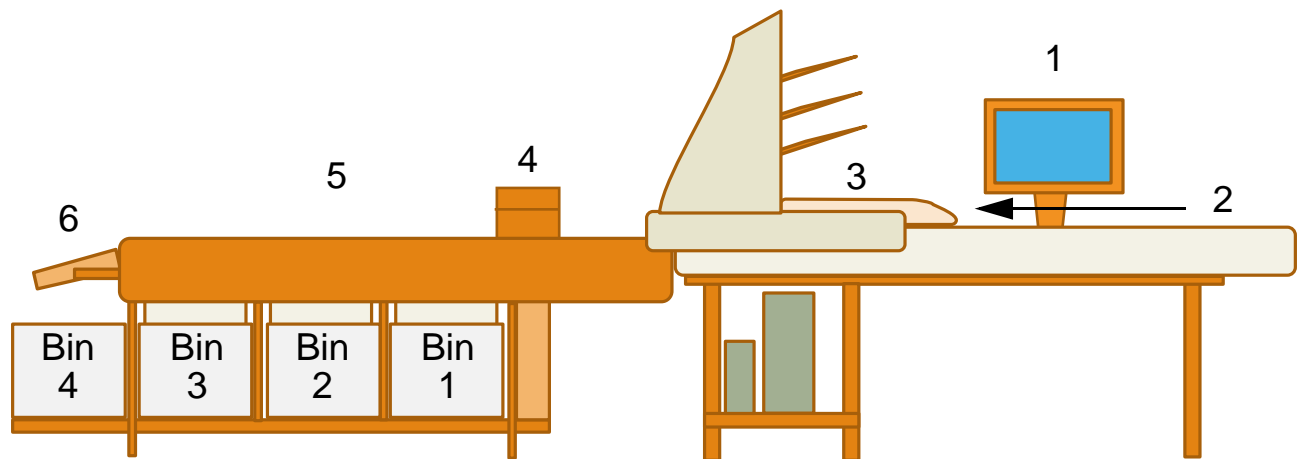
After decisions have been made by the operator(s), the second pass can be run, allowing Pass 1 barcoded mail to be scanned and sorted. When dropped and scanned, the barcode is read by the Falcon series scanner, and sent via ScanLink to the back-end software. If a decision has been made (examples: Deliver, Open/Scan, Trash), STS will print a human readable decision on the envelope, and sort it to bin 1, 2, 3 or 4. The printed decision helps operators ensure that each bin includes similar pieces.

Bins can also have co-mingled decisions, particularly in cases where the number of sort decisions exceeds four. Then, co-mingling decisions in some bins may be necessary.

Mail that has no decision, will not be printed and will be sorted to a designated bin. This bin will be reprocessed at a later time.

Mail that either has a read error, or a message from the back-end software (example: piece belongs in another source bin) can be sorted to the reject bin for correction. Pieces in the reject bin can be re-run and messages can be displayed to the operator to resolve any exceptions before closing the batch.

For all of the steps in this procedure, refer to Figure 2-3.



**Figure 2-3: Pass 2 workflow diagram**

1. The Bin ID of the source bin (which was Bin 4 in Figure 2-1), and the destination bins (1, 2, 3, 4) are captured.
2. Pass 1 processed mail is dropped and scanned. The Barcode value is sent to the back-end system via ScanLink, for a sort decision.
3. The Falcon imagers locate a clear area to print on the envelope.
4. Printer prints a human readable decision on the piece.
5. The conveyor moves the mail to the appropriate bin, where 'pop-up' sorters push mail into the appropriate bin.
6. For Bin 4, the reject bin at the end of the conveyor will pivot, to allow mail to drop off the end of conveyor into Bin 4 below.
7. Completed batch is sent to the back-end software. Batch includes bin ID(s) of source and destination bins, along with the counts expected for each bin.

## 2.3.1. More on the Pass 2 Job

- The Pass2 job will be identified by an STS job type. The job type will automatically switch the Falcon from scanning mode to sorter mode, set the new timings for the sensors on the 'longer paper path,' and make the sorter printer the destination for audit trail print.
- Entering tub IDs is (still) an optional step which can be done anytime before closing the batch. Typically, the destination tubs will stay in place until they are filled, and then be replaced with a new tub.
- Mail in the second pass can be dropped face-up or face-down (pieces from Pass 1 may fall into the sorting tubs this way), so be sure the Pass 2 job is set up to read duplex images.
- The printed barcode value will be read by Falcon, and the piece will be rejected if a barcode can't be read. These pieces may require some type of 'look-up' in the back-end system to determine status, or may just be as simple as keying in the human readable barcode for pieces that have been rescanned where the barcode still can't be read.
- Barcodes read by Falcon are passed via ScanLink to the back-end software for a decision. The ScanLink document type is returned, and matches to a pagetype, which is typically assigned an audit trail 'decision name' and a bin location. Pieces with no decision are not printed, and are sent to the 'no decision' bin for reprocessing at a later time.
- The back-end system will get a batch at Pass 2 which includes the inventory of what was sorted into each bin. The open and scan bin will later get processed as a normal Falcon scanning job, where the content pages will be sent to the back-end system for delivery. The deliver bin will contain deliverable mail, and electronic versions of this mail will be 'removed' from the system. The same process will occur for 'trash'. The 'no decision' bin will be processed as another Pass 2 type job, in subsequent runs. There can be other decisions, which will be determined by the customer.
- Forwarded pieces can have instructions printed via audit trail and can optionally be sorted to the reject bin, the deliver bin, or any bin the customer designates.

- Back-end software can also ‘flag’ pieces that may be in the wrong bin or have been removed from the system. In the first release, the piece is simply rejected and a message is provided via ScanLink on exceptions ‘flagged’ by the back-end. In subsequent rescans, the operator can use these messages to decide how to correct before closing the batch.
- The initial application is primarily designed to electronically deliver as much mail as possible, and to avoid delivering as much physical mail as possible. Today’s mail rooms typically hand sort and deliver physical mail that isn’t ‘junk’ mail. This system will help them accomplish this with a minimum of physical delivery resources.
- After a few days of processing, any remaining mail without a decision will likely just be delivered.
- Select mail will also be normally ‘just delivered’ (examples: magazines, mail to CEO or legal staff, too-thick mail).
- The printed instructions on pieces, the automatic sorting, and operator processes work together to get as much mail electronically processed as possible. A browser based interface to the back-end system can help look-up exceptions when they occur, but is not required. Messages pushed back through the existing ScanLink interface can also help resolve how to handle exceptions.
- Pass 2 sort decisions are not limited to the four categories shown in this example. The process lends itself to complex sorting and finer classifications, if needed.
- The idea for each pass is to run as quickly as possible, reject/out-sort any exceptions, re-run those and use on screen messages to resolve any errors; then close the completed batch, which is generally comprised of pieces from one source bin.

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## 2.4. Other Workflows

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There are other sorting applications, including insurance ‘blacklisting’ where specific ‘senders’ (expired policies) require special processing and need to be sorted out of normally processed, active policy holder mail.

### 2.4.1. Insurance Blacklisting

In this workflow, the back-end system checks incoming mail against a ‘blacklist’ to sort those pieces out for specialized processing.

1. First pass: envelopes are imaged and a sequential barcode is printed.
2. Some envelopes already printed with select barcodes are ‘green listed’, while others are sorted for Second Pass scanning.
3. Backend system performs an OCR read of return information and determines if any part of the OCR value is part of the ‘blacklist’.
4. Second pass: ‘blacklisted’ items such as expired policy holders are sorted and sent to a specialized process, ‘green listed’ items such as active policy holders are sorted, and opened, scanned and processed normally in next pass.

### 2.4.2. Return Mail Processing

1. First pass: envelopes are imaged and optionally, a barcode is printed.
2. Backend system performs an OCR read of address information and the ‘yellow label’ Nixie\* information to determine reasons mail was returned.  
*\* “Nixie” is a piece of mail that is undeliverable by the post office.*
3. It would be possible, in a second pass to determine which mail might need to be opened, or the database corrections needed to fix the issue. In this application, the idea would be to not open as much mail as possible.



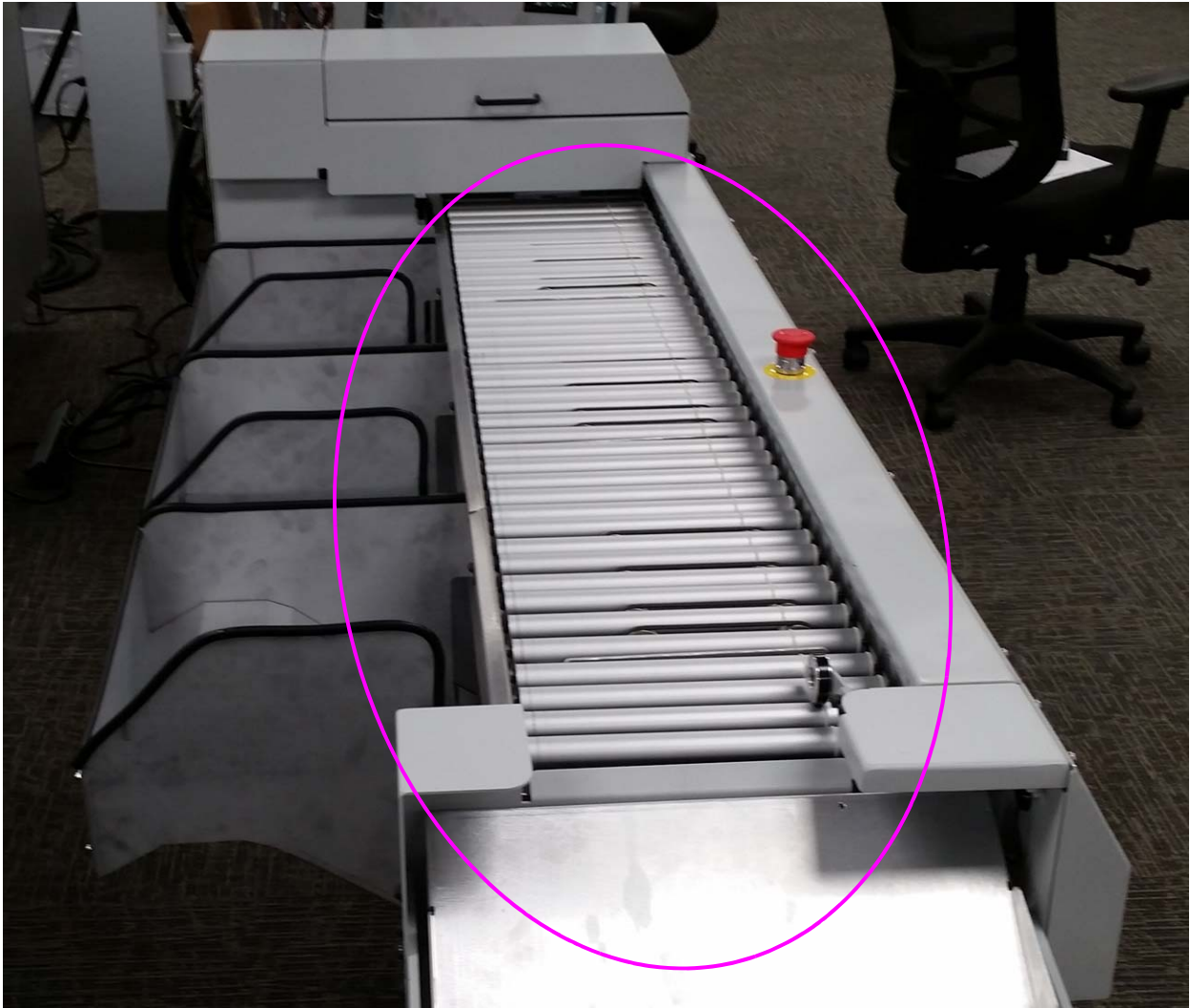
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## 2.5. Main Components

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This section describes the main components of the STS system.

**Conveyor** - a series of rollers that sends the mail down the machine for further processing (Figure 2-4).



*Figure 2-4: Conveyor*

**Justifier** - As an envelope moves underneath this assembly, the wheel forces it against the front wall, so that the printing of barcode information will be in the optimal location (Figure 2-5).



**Figure 2-5: Justifier**

**Printer** - the STS has a single printer that prints both a barcode and human readable information to mail pieces.



## WARNING

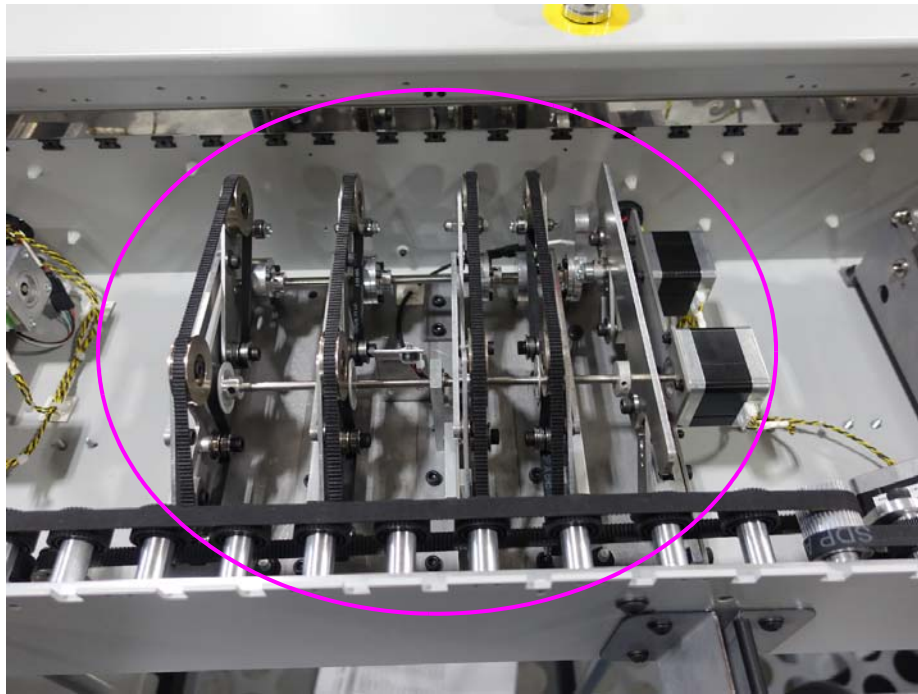
Printer may activate when the printer cover is open. Keep hands away while machine is powered up.

The printer cover, shown in the open position in Figure 2-6, has an interlock switch that cuts the power to the printer boards when the cover is open. This prevents damaging the printer boards when the ink cartridge needs to be replaced.



**Figure 2-6: Printer**

**Pop-up Gates** - a combination of belts, that move the piece from the conveyor to one of the first three sorting bins. All four pop-up belts rise to sort a piece into the destination bin (Figure 2-7).



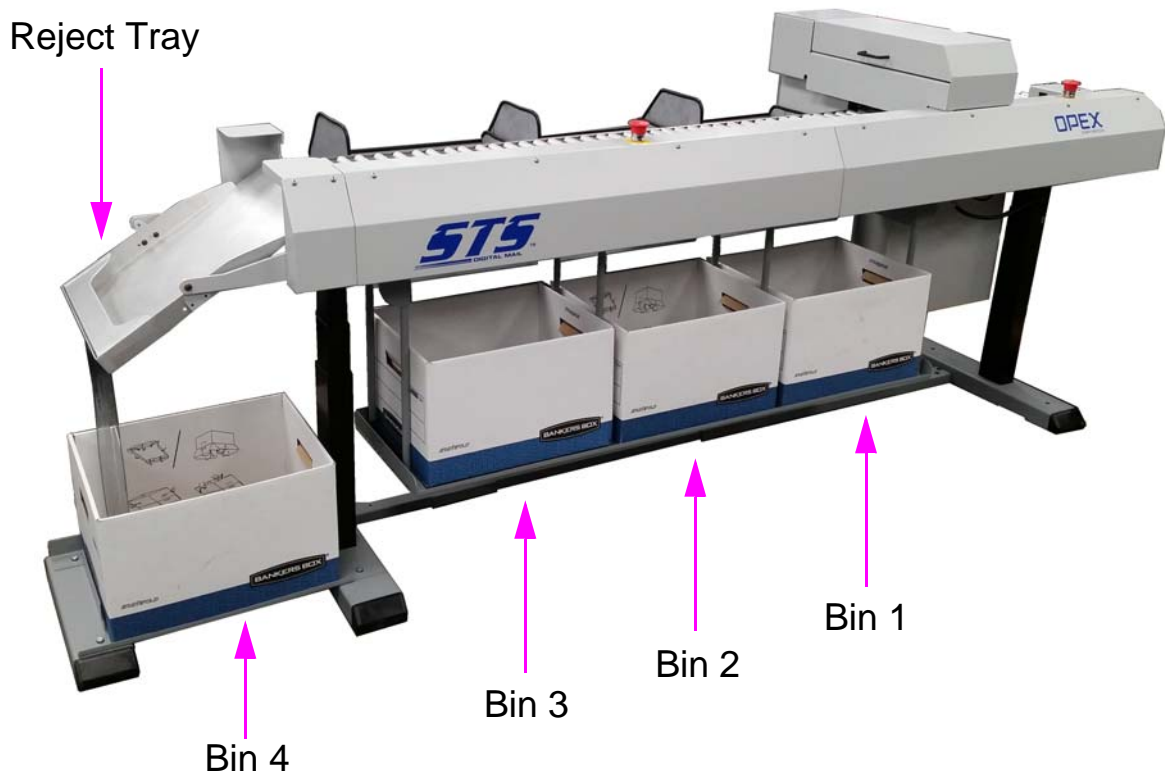
Gate Assembly (rollers removed)



Gate Assembly for Bin 3 engaged

***Figure 2-7: Pop up gates***

**Bins** - the pop-up gates send the mail to sortable bins (1-3). The reject tray and bin 4 are located at the end of the conveyor. There is a Stepper motor-controlled mechanism that raises and lowers the reject tray, allowing access to the fourth sort bin located directly under it.



**Figure 2-8: Bin locations**

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# 3. Operation

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## 3.1. Overview

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This chapter describes the daily operations of the STS system.



### WARNING

Please review the Safety chapter ([page 9](#)) before attempting to operate the STS System.

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## 3.2. Powering Up

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### Power up the STS

1. If the STS system is not already up and running, make sure the printer door is closed, and turn on the power. The power switch is located on the back of the machine close to the Falcon (Figure 3-1).



**Figure 3-1: STS power switch**



## Power up the Falcon

1. Power up the STS as described on [page 40](#). Do not turn on the Falcon until the STS is fully powered up, indicated by the printer cycling from and returning to its home position (this takes about 30 seconds).
2. Turn on the main power switch on the Falcon (see Figure 3-2 for location).



**Figure 3-2: Falcon main power switch**

3. Turn on the computer and log in to Windows with your Windows/network user name and password. If your Falcon is not connected to a network, you may not have to log in to Windows first. Once the computer has finished booting Windows, it will launch the Falcon CertainScan application.

**Note:** If you mistakenly close CertainScan, double-click the icon on the desktop to start it again (Figure 3-3).

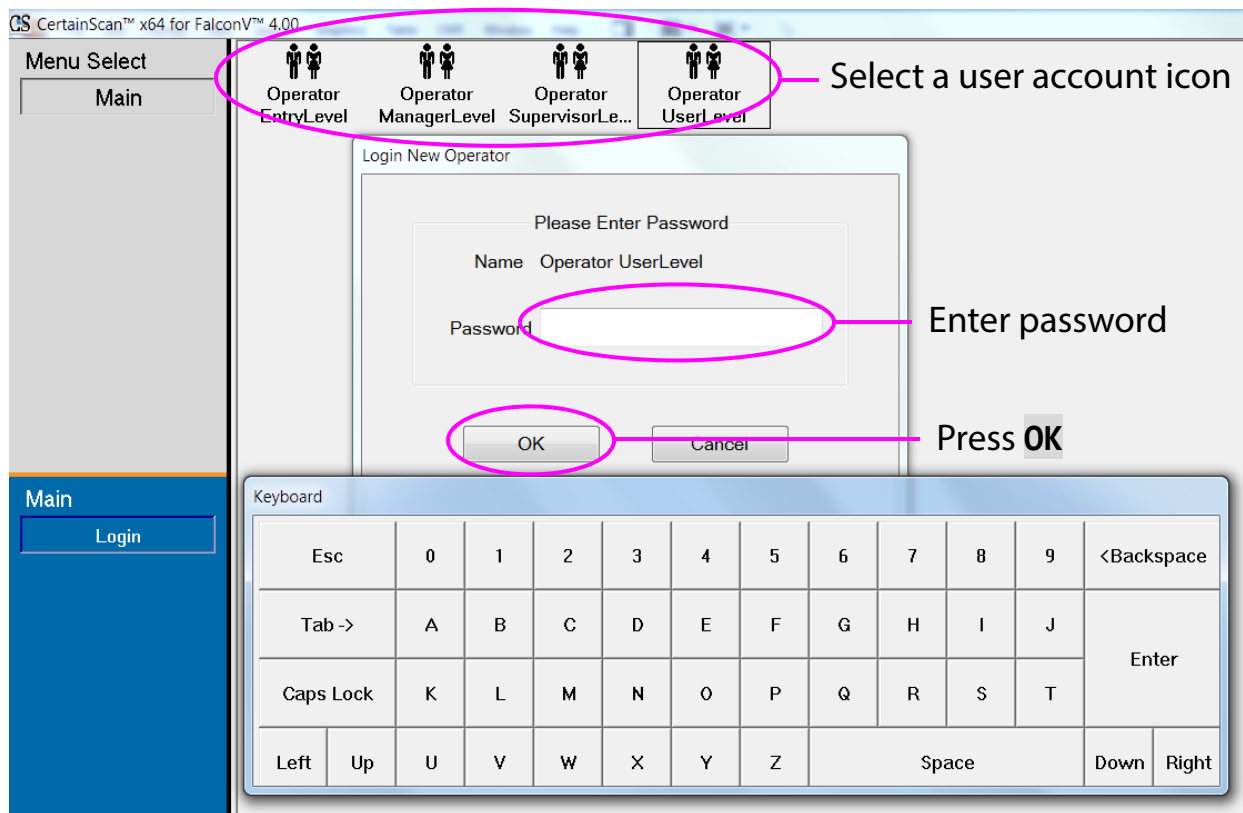


**Figure 3-3: CertainScan desktop icon**

**Log into the CertainScan system:**

1. On the main window (Figure 3-4), select the icon for your user account.

**Note:** If you do not have your own user account, ask your Falcon Administrator for assistance.

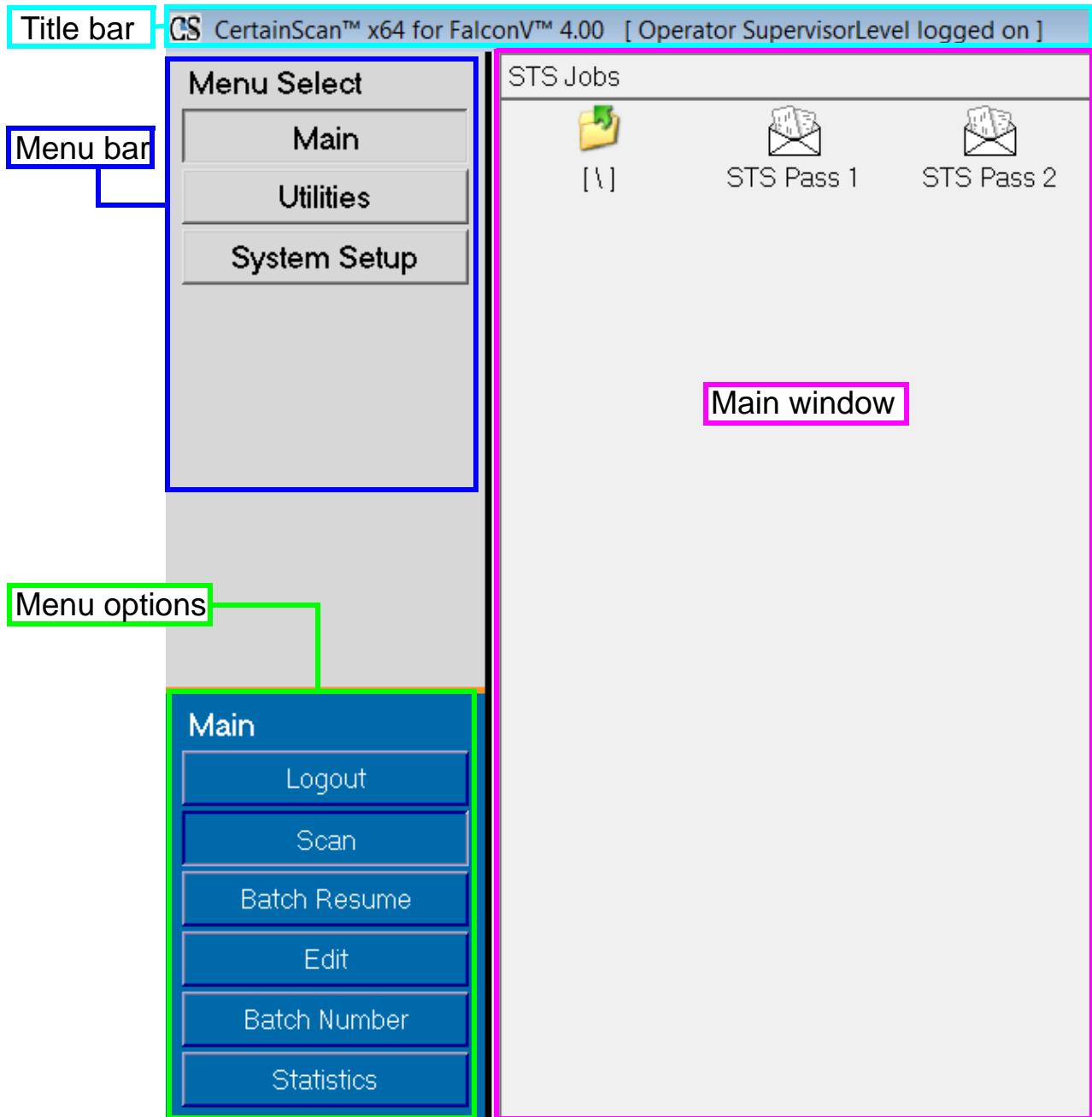


**Figure 3-4: Login Screen**

2. Enter your password using the on-screen or computer keyboard.
3. Press **OK**.

### 3.3. Navigating the Falcon CertainScan software

Once logged in, you are presented with the Menu Select window (*Figure 3-5*) in which you can begin using the features of CertainScan software. The list of menus presented is determined by the user's account-level permissions.



**Figure 3-5: Menu Select window**

**Title bar** Displays the name of the current operator and other pertinent information. Click the CS (CertainScan) icon in the title bar to access the Windows functions (Restore, Move, Size, Minimize, Maximize, Close), as well as the following menus:

- The diagnostics menu is reserved for OPEX technicians.
- The Help menu accesses the About screen, which provides version information for the Falcon CertainScan software.

**Menu bar** Provides access to the main system functions. Select a category from the menu bar and make selections from the main window or the menu options bar.

**Menu options** The menu options provide subcategories for the selections in the menu bar. The menu options bar will change based on the current menu bar selection.

**Main window** View and adjust settings and parameters in the main window.

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## 3.4. Running Jobs

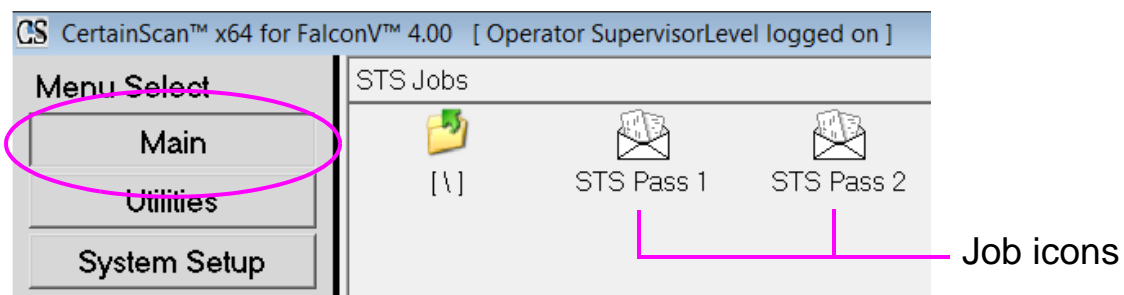
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Now that you have logged into the system and taken some time to familiarize yourself with the main controls and components, you are ready to begin operating the machine. This section will give you a general outline of how to use the CertainScan software to process items.

### Select a job:

1. Select **Main** in the Menu Select bar (Figure 3-6).
2. Click the icon for the job you want to run.



**Figure 3-6: Main Screen**

**Note:** The jobs you see may be different than those shown in Figure 3-6.

Depending on how the job is set up, you will either see the Run screen (see Figure 3-7), the Modify Batch Information screen, or a prompt in which the operator can enter a custom batch name, as described in the “CertainScan 4.0 Software Manual.”

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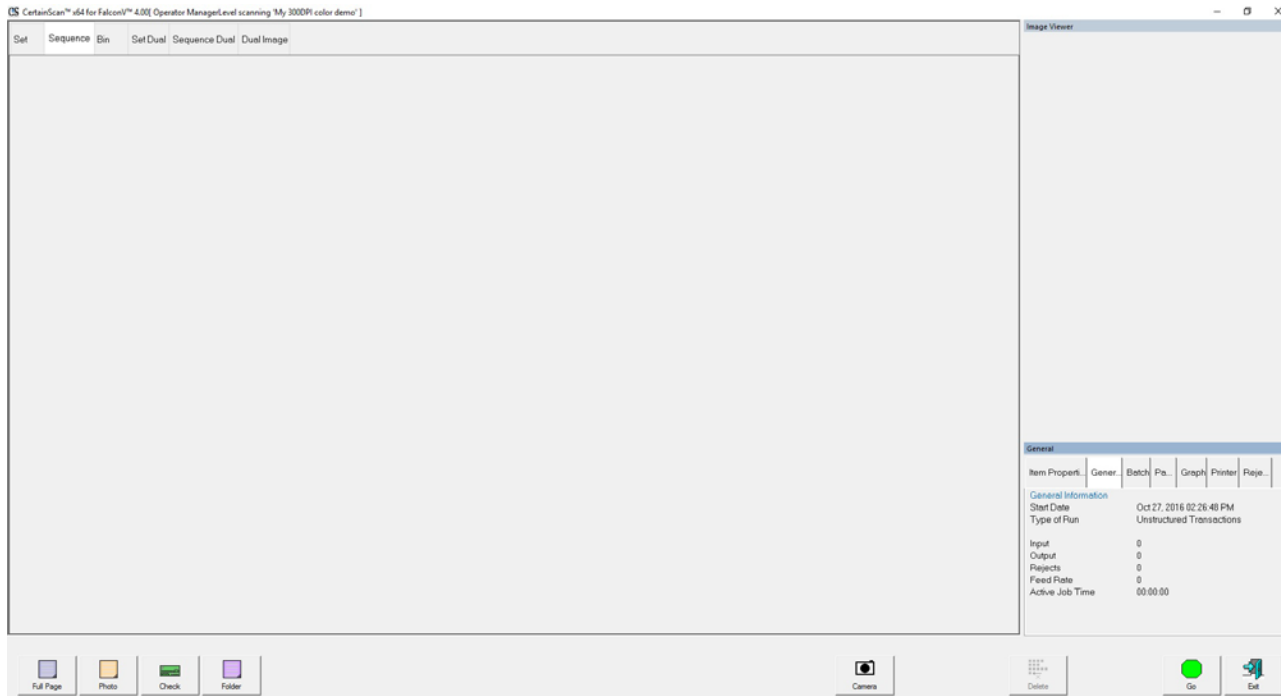
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## 3.5. Using the Run Screen

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The Run screen (*Figure 3-7*) will appear after you select and open a job. This is the main screen you will use for scanning items.



**Figure 3-7: Run screen**

The Manager level has the ability to alter the appearance and layout of the run screen. They can rearrange the information and preview windows to best suit their job requirements.

For more information on how to use the CertainScan software, please refer to the “CertainScan 4.0 (or higher) Software Manual.” The current CertainScan Software Manual can be downloaded at: <https://www.opexservice.com/>

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## 3.6. Scanning mail

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After you have selected a job, you are ready to scan your mail.

### To scan mail into the system

1. Press **Go** on the Run screen.
2. Place the first piece of mail onto the conveyor with the address label side up. The machine will scan the envelope and place a thumbnail of the image in the set window. A large image of the envelope will appear in the Preview window.
3. Continue to place the mail you want to scan onto the conveyor. The scanner will scan and sort the mail depending on the job parameters.

As the scanner processes items, check to make sure:

- Items are being scanned properly.
  - Items are being sorted to the correct bin.
4. When you have finished the job, press **Stop**.
  5. Click **Exit**.
  6. A prompt window appears where you can close the batch.

### 3.6.1. Clearing jams

During normal operation of the machine, you may encounter an error message halting the scanner. The prompt on the machine will offer you two options: to **CONTINUE** or to **CANCEL**. The error message is informing you of a jam or a sensor error. If this is the case, check the machine for jams. After you clear the jam or ensure that the track is clear, press the **Continue** button.

**Note:** *The scanner may also reject items that are misfed, skewed, or because the item was not properly identified. In these cases, the scanner will stop after all the items in the track have been sent to the reject bin.*

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# 4

## 4. Maintenance

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## 4.1. Cleaning the System

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### WARNING

Please review the Safety chapter ([page 9](#)) before performing these procedures.

When properly maintained, the STS™ will continue to operate efficiently and smoothly. However, over time, dust and dirt buildup can degrade the performance, resulting in problems such as skewing, double feeds, item hesitation and damage. The conveyor (belts, rollers, pulleys) requires regular cleaning.

Regular and scheduled maintenance will ensure that the STS™ continues to function properly, with minimum downtime and maximum efficiency. This maintenance procedure consists of debris/dust removal and general cleaning.

### 4.1.1. Conveyor and pop-up gate assemblies

1. Stop all jobs and ensure that all motors are stopped.
2. Check the conveyor area once a shift. Clear the area of paper debris, dust, envelope flaps, etc.
3. Vacuum dust and debris from the conveyor rollers and pop-up gate assemblies.

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## 4.2. Printer Maintenance

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Like any inkjet printer, the printer used in the STS system is prone to periodic clogging. When the print head clogs, the quality of the printed image suffers as ink fails to reach the envelope, leaving horizontal white lines where the ink jets have clogged. If the printer doesn't get cleaned when it first clogs, the ink can

build up inside the print head, requiring more ink-consuming cleaning and even ruining the print head.

The printer and HP ink cartridge (3730515) used in the STS are accessible from the front of the machine. When you remove a cartridge, pay close attention to the position and orientation of the cartridge so it can be replaced properly.

When you install a new printer cartridge, first check the expiration date of the new cartridge you plan to use. The STS printer cartridge (in sealed containers) has a shelf life of two years from the date of manufacture.

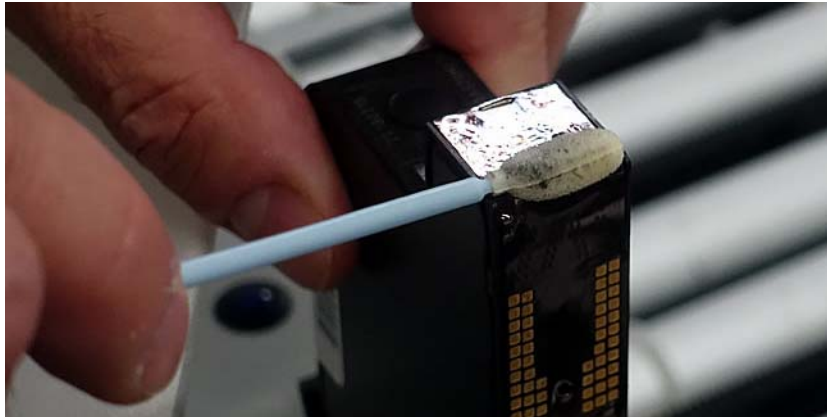
### Proper Care for STS Ink Cartridge

1. If not in use for more than an hour, cap the ink cartridge with provided cap. If not in use for more than 24 hours, cap and bag the cartridge (Figure 4-1).



**Figure 4-1: Capped and bagged ink cartridges**

2. If this process has not been completed, you can use an Isopropyl Alcohol wipe to clean the heads. This will help rejuvenate the head from being dried out. An OPEX MIT Inkjet Swab (1999300) is shown in Figure 4-2.



**Figure 4-2: Scrub Print Heads**

3. Once this happens, you will want to purge the ink cartridge in the CertainScan application (see steps below).
4. If this does not resolve the ink being dried out, replace the cartridge.

### **4.2.1. Purging the printer**

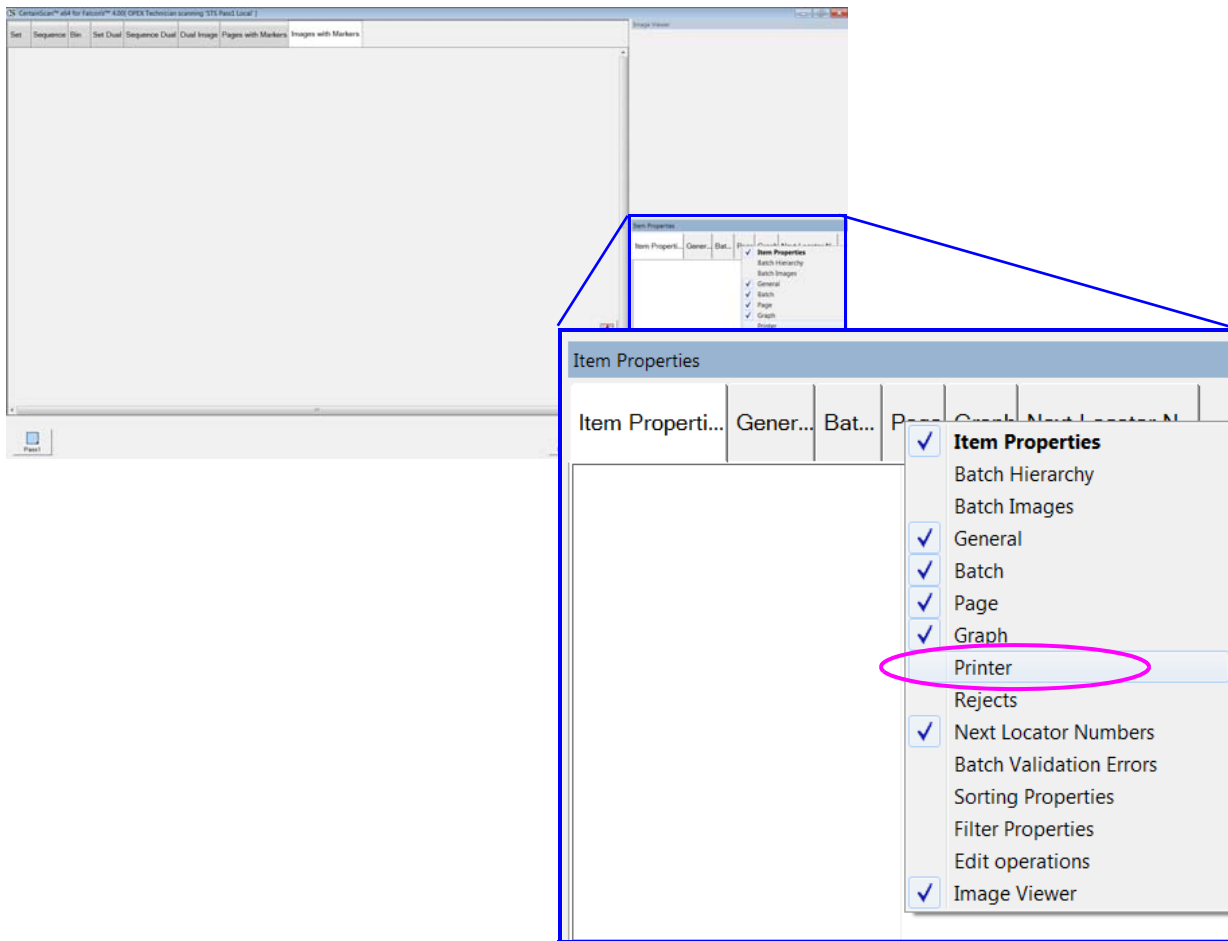
Purging is the process by which a small amount of ink is sprayed through the print head. You must purge the printers if:

- Little or no print appears on the envelopes.
- The print heads are clogged.

#### **To purge the print head:**

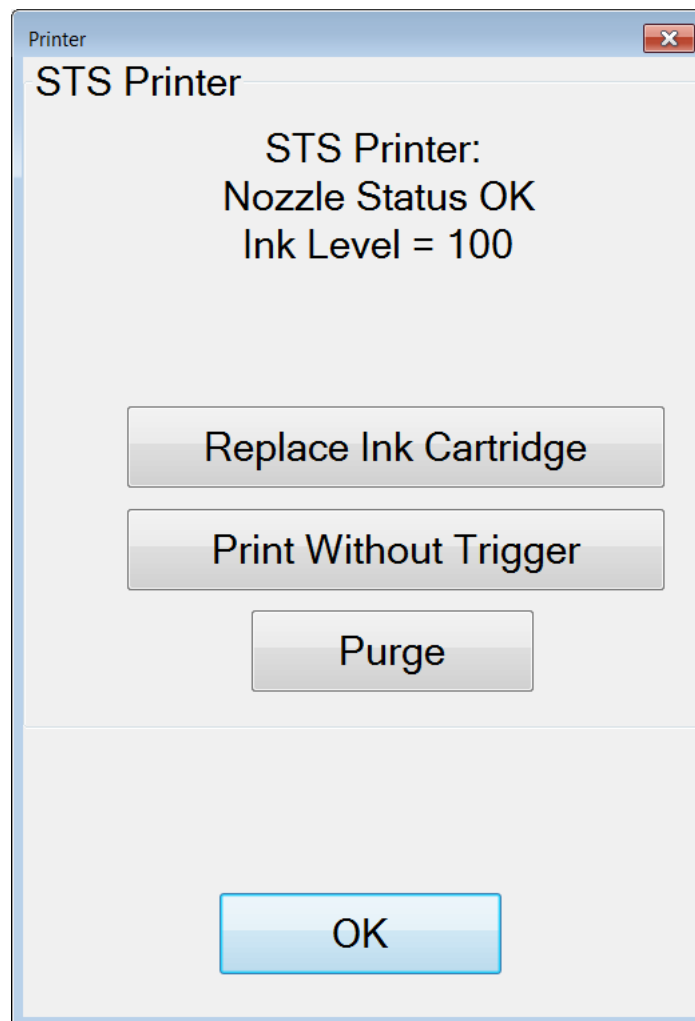
1. Stop the job and confirm that the Falcon and STS conveyors are not running.

2. On the run screen, click on the Printer tab in the lower right area. If the Printer tab does not appear, right-click on the blue bar and select **Printer** from the list (Figure 4-3).



**Figure 4-3: Item Properties - Selecting Printer**

3. The Printer tab displays the nozzle status and ink level for the STS Printer. Click anywhere in this area to bring up the Printer window (Figure 4-4).



**Figure 4-4: Printer window**

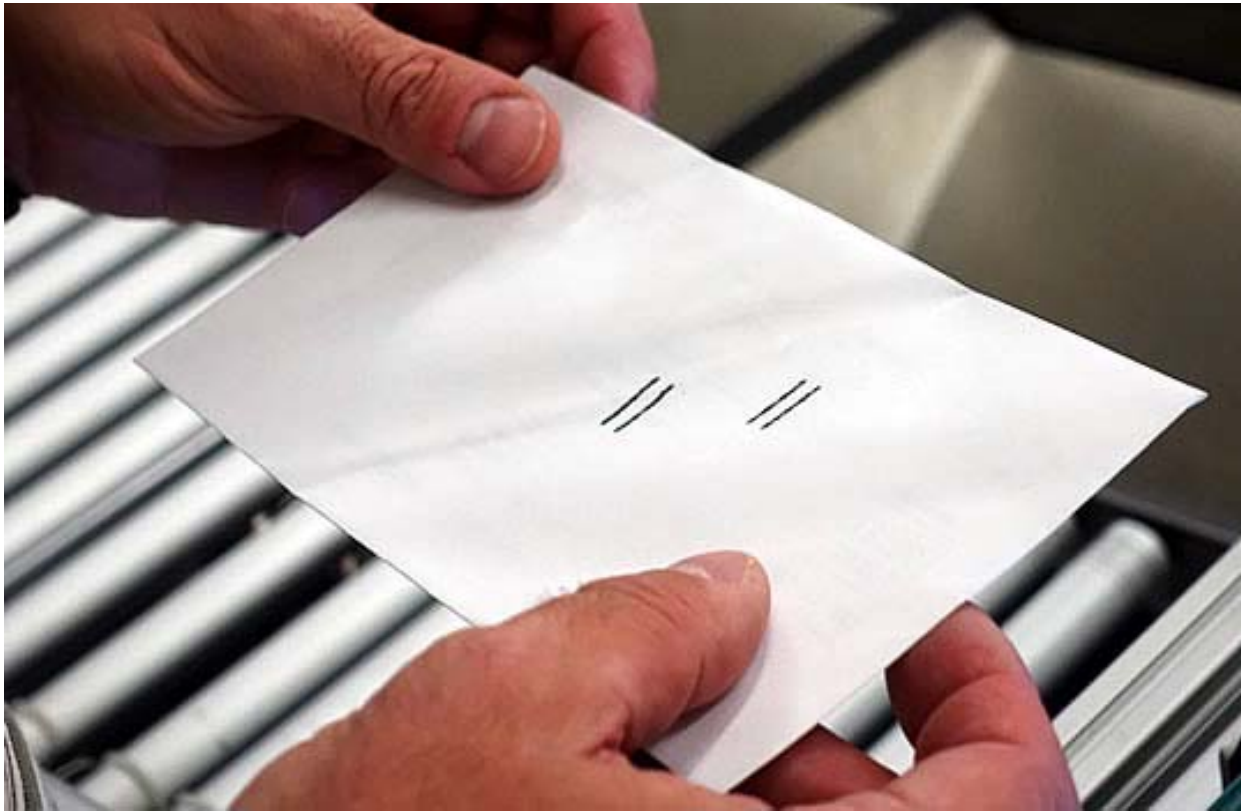
4. Raise the printer cover and pull the printer head out of the docking station to the rollers. Then place a scrap envelope on the rollers underneath the printer (Figure 4-5).



***Figure 4-5: Slide envelope underneath printer***

5. Close the printer cover to re-engage the interlocks.
6. Press the **Purge** button in CertainScan (on the Falcon's screen). It will spit out some ink to prime the print head for proper use.
7. Move the envelope and press the **Purge** button a second time.

8. Look at the envelope. You should see a good, even print spray from the print head, as shown in the examples in Figure 4-6.



**Figure 4-6: Good print spray example**

9. You may want to run a test envelope though to verify good printing. You may have to repeat the above steps a few times to get a good spray. If the print heads are still clogged, they may need to be replaced, or removed for cleaning.

## 4.2.2. Cleaning the printer head

Cleaning the printer is a three-step process, described on the following pages:

1. Remove the cartridge ([page 57](#))
2. Clean the print head ([page 58](#))
3. Reinsert the cartridge ([page 59](#))



## Removing the Cartridge

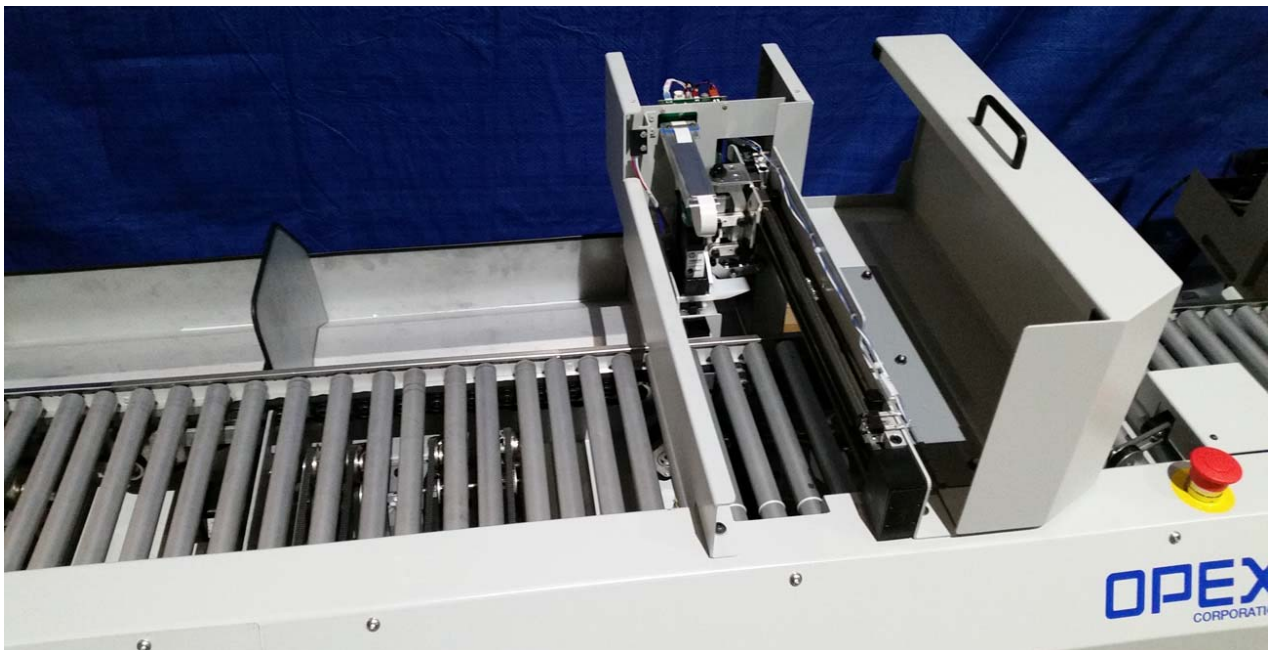
1. End any jobs that are running and stop the machine.
2. Lift the printer cover to access the printer.



### WARNING

Printer may activate when the printer cover is open. Keep hands away while machine is powered up.

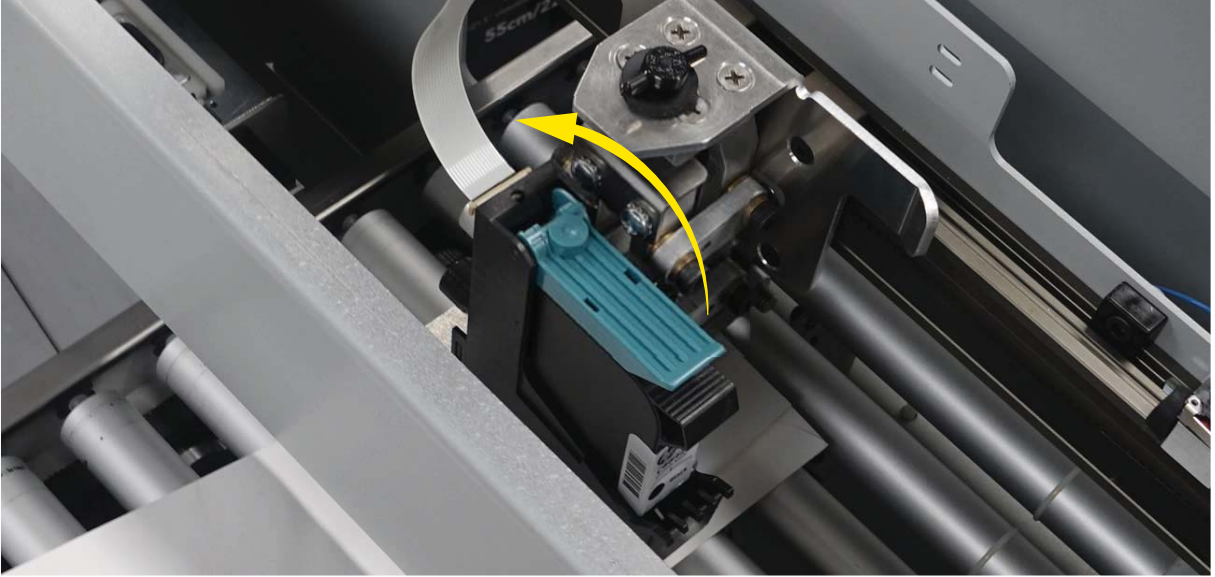
The printer cover, shown in the open position in Figure 4-7, has an interlock switch that cuts the power to the printer boards when the cover is open. This prevents damaging the printer boards when the ink cartridge needs to be replaced.



**Figure 4-7: Lift cover to access printer**

**TIP:** If the printer assembly is towards the back as shown in Figure 4-7, you can manually slide the assembly forward to make it easier for the next steps.

3. Flip the green lever up (Figure 4-8).



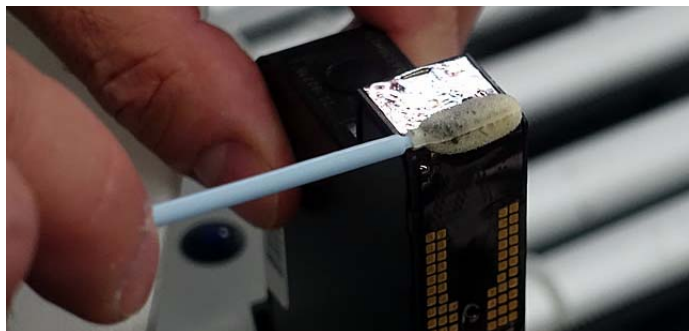
**Figure 4-8: Green Lever up**

4. Lift the print cartridge up and out of its holder.

At this point, you can either clean the print heads as described below, or install a new printer cartridge (see [“Installing a new printer cartridge” on page 59](#)).

### **Cleaning the print head**

1. Remove the existing printer cartridge following the steps in [“Removing the Cartridge” on page 57](#).
2. Use a lint free cloth or lint free swab (1999300 for a bag of 50) dipped in isopropyl alcohol to scrub the print heads (Figure 4-9). Do not use water or other cleaners, as they will damage the head.



**Figure 4-9: Scrub print heads**

3. Wipe it until you do not see any more dried ink around the nozzle orifice holes. If small droplets of ink are visible, this is acceptable.

### **Reinserting the printer cartridge**

1. Tip the front end of the cartridge in first, and then pushing in the rear of the cartridge until it “clicks” into place.
2. Flip the green lever down to lock the printer cartridge in place.
3. Close the printer cover which will restore power back to printer.
4. Once the cartridge is installed, it is recommended to purge the printer, as described in [“Purging the printer” on page 52](#).

## **4.2.3. Installing a new printer cartridge**

1. End any jobs that are running and stop the machine.
2. Lift the printer cover to access the printer. There is an interlock on the printer cover, and when it is lifted open, the power to the printer is removed.
3. Remove the old printer cartridge as described in [“Removing the Cartridge” on page 57](#).
4. Remove the new cartridge from its packaging.
5. Insert the new cartridge by tipping the front end of the cartridge in first, and then pushing in the rear of the cartridge until it “clicks” into place.
6. Lower the green lever to lock it in place.
7. Close the printer cover which will restore power back to printer.
8. Once the cartridge is installed, it is recommended to purge the printer, as described in [“Purging the printer” on page 52](#).

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# 5. Specifications

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## 5.1. Specifications

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### 5.1.1. Basic Configuration

<b>Length</b>	105" (266.7 cm)
<b>Width</b>	29" (73.7 cm)
<b>Maximum Height</b>	Adjustable up to 48" (122 cm)
<b>Weight</b>	320 lbs. (145.15 kg)
<b>Power Requirements</b>	Single Phase Voltage: Auto-switching supply US: 110VAC 60Hz 3.5A EURO: 220VAC 50Hz 2A
<b>Power Consumption</b>	Idle: 120VAC - 1.15 amps, 138 Watts Operating: 120VAC - 2.21amps, 265 Watts Power cord: Pluggable with C14 Interface at STS
<b>STS Power Legs</b>	Single Phase Voltage: Auto-switching supply 110VAC -240VAC, 50hz-60Hz Power in, Max: 450 Watts Power cord: Pluggable with C14 Interface at STS

### 5.1.2. Envelope Specifications

<b>Length</b>	5.25" to 15" (12.7cm to 38.1cm)
<b>Width</b>	4.25" to 12" (10.795cm to 30.48cm)
<b>Thickness</b>	Up to 0.188" (0.4775cm)
<b>Type</b>	Coated, uncoated and gloss substrates (no PVC, Tyvek)
<b>Curl height</b>	Less than 0.25" (0.64cm) on lead edge

### 5.1.3. Operational Specifications

<b>Throughput</b>	2,000 #10 envelopes/hr.
<b>Daily Volume</b>	Average Daily Volume: 16,000 pieces (8 hours) Duty cycle: 100%
<b>Falcon Requirements</b>	<ul style="list-style-type: none"> <li>• SOLS (minimum requirements):</li> <li>• STS Enabled</li> <li>• ScanLink Interface Enabled</li> <li>• 1D Barcode Suite Enabled</li> <li>• CertainScan 4.0 version 4.00.131 and higher</li> </ul>
<b>User-Replaceable Consumables</b>	<ul style="list-style-type: none"> <li>• Bankers Box (cardboard boxes that sit under the conveyor for collecting sorted mail)</li> <li>• Print Cartridge (3730515) always have one in stock</li> <li>• 1" x 2" White address labels - for the STS to find a clear zone to print the barcode on busy envelopes.</li> </ul>

### 5.1.4. Bin Specifications

<b>Number of Bins</b>	<ul style="list-style-type: none"> <li>• Four (4) high capacity sorting bins (Banker boxes)</li> <li>• One (1) passive reject pocket (5th Bin)</li> </ul>
<b>Sort Bin Specs</b>	<ul style="list-style-type: none"> <li>• Box exterior size: 12.5"W x 15.5"L x 10"H (centimeters = 31.77W x 39.37L x 25.4H)</li> <li>• Volume: 1.05 cubic feet (0.03 cubic meter)</li> <li>• Max loaded weight: 20-25 lbs (9.072-11.34 kg)</li> <li>• Operator removable from front of machine</li> </ul>
<b>Reject Pocket Specs</b>	<ul style="list-style-type: none"> <li>• Size: 15"W x 17"L x 1.5"H (centimeters = 38.1W x 43.18L x 3.81H)</li> <li>• Volume: 0.22 cubic feet (0.006 cubic meter) (Approximately 15, #10 envelopes)</li> </ul>

## 5.1.5. Printing Specifications

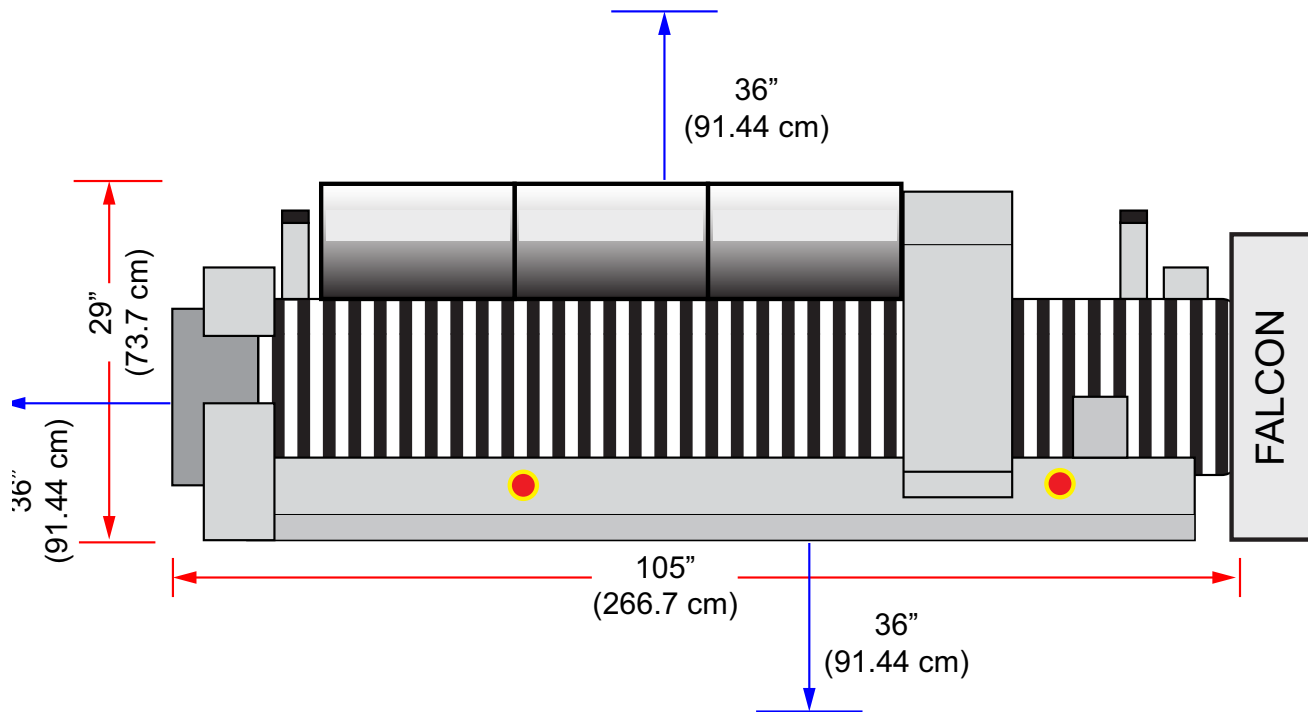
<b>Printer type</b>	High capacity Inkjet printer (black only)
<b>Printing capability (based on single pass)</b>	<ul style="list-style-type: none"> <li>• Single sided (top side print)</li> <li>• Maximum number of printed lines: four (4) on a single pass</li> </ul>
<b>Characters</b>	Barcode and human readable text (printed from audit trail information)
<b>Print cure time</b>	Less than five (5) seconds on uncoated bond stock
<b>Maintenance</b>	<ul style="list-style-type: none"> <li>• Customer-replaceable cartridge</li> <li>• Ink level Indication: screen monitored</li> </ul>
<b>Clear zone/location print area</b>	Location/print areas (located by Falcon imagers): <ul style="list-style-type: none"> <li>• Minimum Clear Zone 1 inches H x 2 inches L (25.4mm H x 50.8mm L)</li> <li>• Minimum Spacing from Lead Edge: 0.5 inches (12.7mm)</li> <li>• Minimum Spacing from Outboard Edge: 2.625 inches (66.675mm)</li> <li>• Minimum Spacing from Inboard Edge: 0.5 inches (12.7mm)</li> <li>• Printable area approximately 0.5 inches H X 1.5 inches L (12.7mm H x 38.1mm L)</li> </ul>

## 5.1.6. Environmental Specifications

<b>Agency approvals</b>	UL, CE, ROHS/REACH
<b>Sound level</b>	< 80 dB in operating mode
<b>Operating, Transportation and Storage Temperatures</b>	15 - 35°C (59 - 95°F)
<b>Humidity</b>	15-76% RH



## 5.2. Equipment layout and required floor space



**Figure 5-1: STS Footprint**

### Notes:

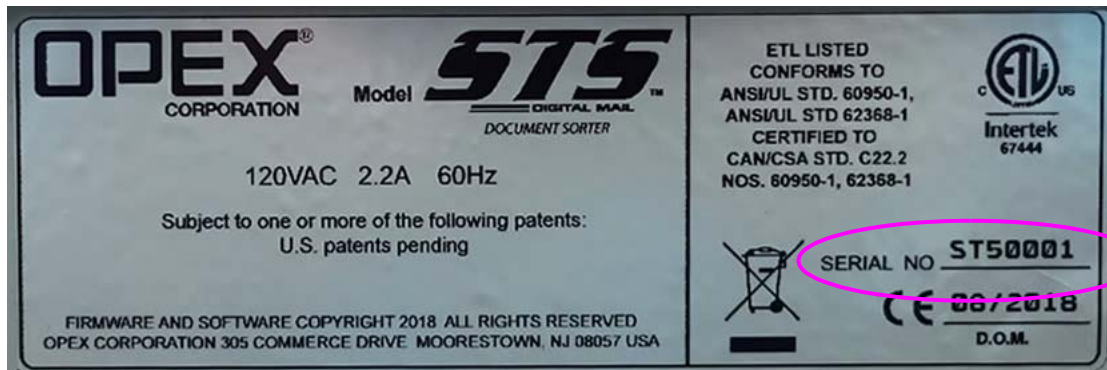
1. All dimensions are approximate and are provided for reference only.
2. Allow for at least 36" (91.44 cm) walking/working space around the front, back and left side of machine (right side is the Falcon location).

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## 5.3. Contacting OPEX Service

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Before contacting OPEX Technical Support, the Authorized Employee should locate the Service Tag on the back of the machine so that they can provide the assisting OPEX technical support representative with the machine serial number (Figure 5-2).



**Figure 5-2: Machine serial number label**

See contact information on [page 2](#).

# G. Glossary

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## G.1. List of Terms

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The following list of terms, used throughout the STS™ documentation, is sorted alphabetically.

**Audit Trail** - User-definable information printed on items and/or displayed on item images.

**Barcode** - A series of bars and spaces arranged in a predetermined pattern to represent elements of data.

**Batch** - One or more sets/transactions. Information on pieces is grouped and sent to the operator in batches.

**Category** - Grouping of similar parameters.

**CertainScan** - software installed on the host computer, used for daily operations and troubleshooting procedures.

**Document** - Any single sheet of paper processed by the scanner.

**Job** - A profile of parameter settings you use for processing items. When you run items through the scanner, you must specify which job to run. Jobs allow you to process pieces in a similar manner from run to run.

**OCR** - Optical Character Recognition. Used by the scanner to identify letters, numbers, and symbols on items.

**Operator** - A person trained in the normal operation of the machine.

**Piece** - Any single sheet of paper processed by the scanner.

**Skew** - A term used to identify when an item is misaligned when scanned. Typically, a skewed item prevents the scanned image from being read properly.

**Transaction** - Defined by the customer in a number of ways. For example: Check(s) and stub(s), with or without attachments, and an envelope (such as in a payments job, it can contain singles, multis, mixed, check only, for example).

**Transaction Sorting** - A term used to indicate jobs in which prior items within a transaction/set determine the sorting of later items.

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## About OPEX Corporation

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OPEX Corporation is more than a manufacturer of machines. We continuously reimagine technology to power the future for our customers.

With an innovative approach, we engineer unique automated solutions that support our customers so they can solve the most pressing business challenges for both today and tomorrow. Our scalable Warehouse, Document, and Mail Automation solutions improve workflow, accelerate change, and drive efficiencies in infrastructure.

We are a family-owned and operated organization with more than 1200 committed employees who innovate, manufacture, install, and service products that are helping transform industry every day. We listen to our customers, respect each other, and work together to help reimagine the future through automated solutions.

At OPEX, we are Next Generation Automation.



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