

stratasys

F900

SITE PREPARATION GUIDE

Part No. 402739-0001_REV_C

stratasys

LIABILITY STATEMENT

The information in this document is subject to change without notice.

Stratasys, Inc. makes no warranty of any kind with regard to this material, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Stratasys, Inc. shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this material.

This document is protected by copyright. All rights reserved. Its use, disclosure, and possession are restricted by an agreement with Stratasys per software copyright. No part of this document may be photocopied, reproduced or translated into another language without the prior written consent of Stratasys, Inc.

All drawings and information herein are the property of Stratasys Inc. All unauthorized use and reproduction is prohibited.

TRADEMARK ACKNOWLEDGMENTS

Stratasys, Insight, FORTUS, and FDM are registered trademarks of Stratasys, Inc.

F900 is a registered trademark and service mark of Stratasys Inc. in the United States and other countries.

All other product names and trademarks are the property of their respective owners, and Stratasys assumes no responsibility with regard to the selection, performance, or use of these non-Stratasys products. Product specifications subject to change without notice.

TABLE OF CONTENTS

ABOUT THE F900 1

F900 SYSTEM COMPONENTS 1

SHIPPING KIT CONTENTS 1

HOW TO USE THIS GUIDE 1

SITE PREP TASKS 2

SELECTING THE SITE 2

SPACE REQUIREMENTS 2

Dimensions, Weights and Shipping Temperature 2
Separately Shipped Item 2
Minimum Clearances 3

ENVIRONMENTAL REQUIREMENTS 4

Heat Output 4

ELECTRICAL REQUIREMENTS 4

COMPRESSED AIR REQUIREMENTS 5

LAN REQUIREMENTS 5

RECEIVING THE SYSTEM 6

INSPECT CRATE FOR DAMAGE 6

PREPARING FOR INSTALLATION 6

REQUIRED TOOLS AND EQUIPMENT 6

FORKLIFT TRUCK REQUIREMENTS 6

MOVING CRATED SYSTEM 7

UNPACKING THE SYSTEM 7

Remove Shipping Materials 7
Inspect System Exterior 7

REMOVE SYSTEM FROM SHIPPING SKID 8
Lifting the System 8
Lifting by Crane 9
Moving the System 10
Transporting to a New Location 11
SERVICE CONNECTIONS 12
COMPRESSED AIR CONNECTION 14

REVISION LOG

Revision	Date	Description of Changes
402739-0001_REV_A	September 2016	Initial release of this document.
402739-0001_REV_B	September 2017	Added lockout tagout statement.
402739-0001_REV_C	June 2018	Added changes for F900 release.

SAFETY

The following basic safety tips are given to ensure safe installation, operation, and maintenance of Stratasys equipment and are not to be considered as comprehensive on matters of safety. The F900 is designed to be safe and reliable rapid prototyping system. Access to areas of the system are potentially dangerous.

SAFE ENVIRONMENT

- Connect equipment to a grounded facility power source. Do not defeat or bypass the ground lead.
- Know the location of equipment branch circuit interrupters or circuit breakers and how to turn them on and off in case of emergency.
- Know the location of fire extinguishers and how to use them. Use only ABC type extinguishers on electrical fires.
- Know local procedures for first aid and emergency assistance at the customer facility.
- Use adequate lighting at the equipment.
- Maintain the recommended range of temperature and humidity in equipment area.
- Do not use this product in an environment containing volatile or flammable compounds.

ABOUT THE F900

This system incorporates the latest in innovative technologies to provide precision prototypes from a CAD design. Stratasys' Fused Deposition Modeling (FDM) technology provides prototype parts, including internal features, that can be used to field-test form, fit, and function. The F900 features a servo/ballscrew driven XY gantry with multiple high temperature modeling material capability.

F900 SYSTEM COMPONENTS

- Insight Software Package
- Computer Workstation (not sold by Stratasys)
- F900 Printer
- Modeling Material
- Support Material

SHIPPING KIT CONTENTS

- Long Bolt Lifting Assemblies (108235-0001) (2 each)
- Eyebolts (107825-0001) (4 each)
- Short Bolt Lifting Assemblies (108239-0001) (2 each)
- Teflon Shields (107824-0001) (4 each)

HOW TO USE THIS GUIDE

This guide provides information for selecting an appropriate location for the F900 system. It also provides instructions for unpacking and preliminary system set-up. Information of particular importance is presented in one of three formats:



Warning: A WARNING indicates a procedure that may cause Injury to an operator if the procedure is not followed.

A WARNING will precede the paragraph of instruction to which it relates.



Caution: A CAUTION indicates a procedure that may cause Damage To Equipment if the procedure is not followed.

A CAUTION will precede the paragraph of instruction to which it relates



Note: A NOTE is used to highlight a specific point or to provide an operational tip. While useful, a NOTE does not indicate a procedure that can cause injury or damage if it is not followed.

A NOTE will follow the paragraph of instruction to which it relates.

SITE PREP TASKS

SELECTING THE SITE

Decide where to install the system based on the following:

1. Space Requirements
2. Environmental Requirements
3. Electrical Requirements
4. Compressed Air Requirements
5. LAN Requirements

Note: The F900 system is capable of generating vibrations depending mainly on part build geometry and material characteristics. This consideration will need to be taken into account if locating the system near vibration sensitive equipment.

SPACE REQUIREMENTS

DIMENSIONS, WEIGHTS AND SHIPPING TEMPERATURE

Warning: The system weighs 7250 lbs. (3290 kg) including the crate. Make sure equipment and personnel are capable of moving the system.

Make sure that the installation site floor space can accommodate the system weight and dimensions (plus required clearances).

System Size (uncrated)	Width: 109.1 in. (277.1 cm) Depth: 66.3 in. (168.4 cm) Height: 79.8 in. (202.7 cm) With light tower attached 89.8 in. (228.1 cm)
System Size (crated)	Width: 120 in. (304.8 cm) Depth: 78 in. (198.1 cm) Height: 88 in. ±1 in. (223.5 cm ± 2.54 cm)
System Weight	6330 lbs. (2870 kg)
Shipping Weight	7250 lbs. (3290 kg)
Weight Loading Pads	4 pads, each 5.0 x 3.5 inches (12.7 cm x 8.9cm)
Operating Altitude	Up to 3000m
Shipping Temperature Range	-40°F to 158°F (-40°C to 70°C) Note: In freezing temperatures bring the system indoors and leave crated until the system reaches room temperature.

SEPARATELY SHIPPED ITEM

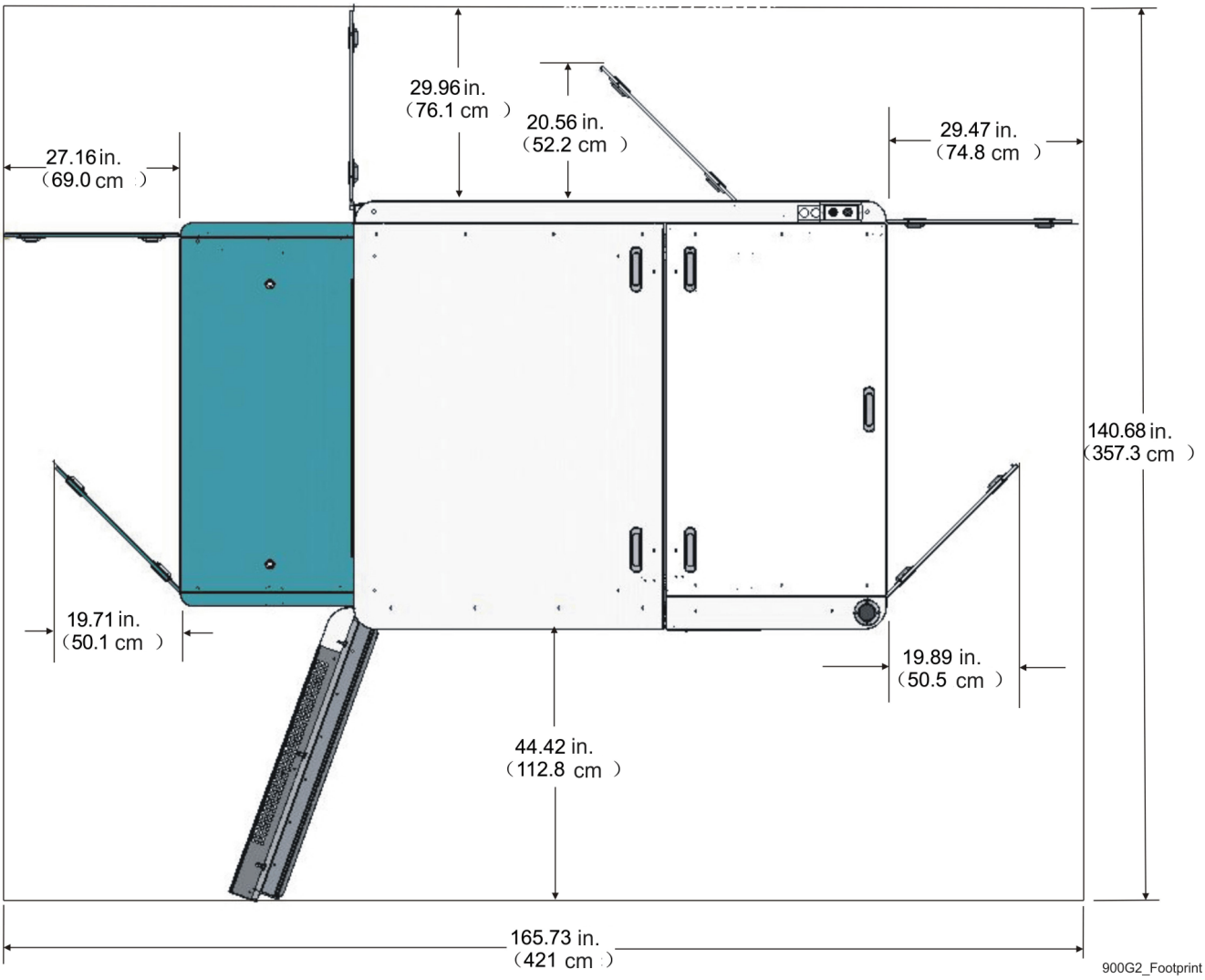
Kick Panel Box	Width: 65 in. (165.1 cm) Depth: 37 in. (94 cm) Height: 34 in. (86.4 cm) Weight: 278 lbs. (126 kg)

MINIMUM CLEARANCES

Left Side Clearance	Minimum 27.16 inches (68.0 cm)
Right Side Clearance	Minimum 29.47 inches (74.8 cm)
Rear Clearance	Minimum 29.96 inches (76.1 cm)
Front Clearance	Minimum 44.42 inches (112.8 cm)
Ceiling Height	Minimum 115.8 inches (294.1 cm)

Please note that the front clearance area must remain clear to provide open access to the emergency stop (which is located on the front surface of the printer).

Figure 1: System Space Requirements



ENVIRONMENTAL REQUIREMENTS

- The F900 is for indoor use only.
- Operating temperature: 60°F (15.5°C) to 85°F (29°C).
- Humidity: 20-80% non-condensing.

HEAT OUTPUT

Heat output is material dependent due to the various temperatures maintained in the build oven.

Material Type	Heat Load BTU/hr
PPSF	26,000 heat load BTU/hr
PC	18,000 heat load BTU/hr
M30	12,000 heat load BTU/hr

ELECTRICAL REQUIREMENTS

The facility power is required to meet the following power quality and nominal voltage requirements:

- Rating of system is 13.5KVA
- 230VAC nominal 3-phase service with 5% regulation
  Note: 230VAC as measured phase-to-phase at the input connection to the printer. Facilities wiring should be designed to meet the + or - 5% voltage tolerance requirement at the printer under all operating currents ranging up to 34 Amps.
- 50 Hz or 60 Hz
- 40 Amp circuit
- 34 Amp full load current on all three phases
- Maximum inrush current ~570 Amps for 2ms
- Three wire plus ground electrical connection
- Site must be equipped with appropriate lockout tagout kit for equipment.

Operation of the system outside this range is not recommended and degradation of the system performance and shortened component life expectancy will be experienced.

The system is to be operated on a 3-phase service meeting the recommendations for power quality given in IEEE Standard 141-1976. Facilities who are unsure of their power quality should contact their service provider.

COMPRESSED AIR REQUIREMENTS

The system has an onboard pressure regulator. The system has onboard particle filtration, water, and oil separation.

- Supply pressure at the system: 90-120 psi with a minimum flow of 20 SCFM
- Less than 95°F (35°C)
- Non-lubricated
- Non-condensing
- Connection: Dimensional standard A-A-59439, 3/8” Body Size (also conforms to ISO 6150-B-15 standard)
- DIN ISO 8573-1 Quality of Particles: Class 4, Humidity and liquid water: Class 4, Oil: Class 2

Classes ISO8573-1:2010	Particles				Water		Oil
	Number of Particles per 1 m^3			Concentration mg/m^3	PDP °C	Liquid g/m^3	Aerosol mg/m^3
	0,1 - 0,5 µm	0,5 - 1 µm	1 - 5 µm				
0	Stronger than class "**1**", according to specification of manufacturer/user						
1	≤ 20000	≤ 400	≤ 10		≤ -70		0,01
2	≤ 400000	≤ 6000	≤ 100		≤ -40		0,1
3		≤ 90000	≤ 1000		≤ -20		1
4			≤ 10000		≤ +3		5
5			≤ 100000		≤ +7		
6				≤ 5	≤ +10		
7				5 - 10		≤ 0,5	
8						0,5 - 5	
9						5 - 10	
X				> 10		> 10	> 10

LAN REQUIREMENTS

A LAN connection is required for communication and file transfer functions.

- Category 5 or better
- 10/100 Base T Ethernet
- RJ45 connector

Note: The F900 will function in both DHCP or Static IP configurations.

- Use a standard Ethernet patch cable when connecting to a facility network (included in the start-up installation kit). If connecting directly to a workstation an Ethernet cross over cable is required (not supplied in the start-up kit).

RECEIVING THE SYSTEM

INSPECT CRATE FOR DAMAGE

Before opening the shipping crate, inspect the crate for signs of exterior damage.

Report evidence of excessive damage to Stratasys and the shipping company.

PREPARING FOR INSTALLATION

REQUIRED TOOLS AND EQUIPMENT

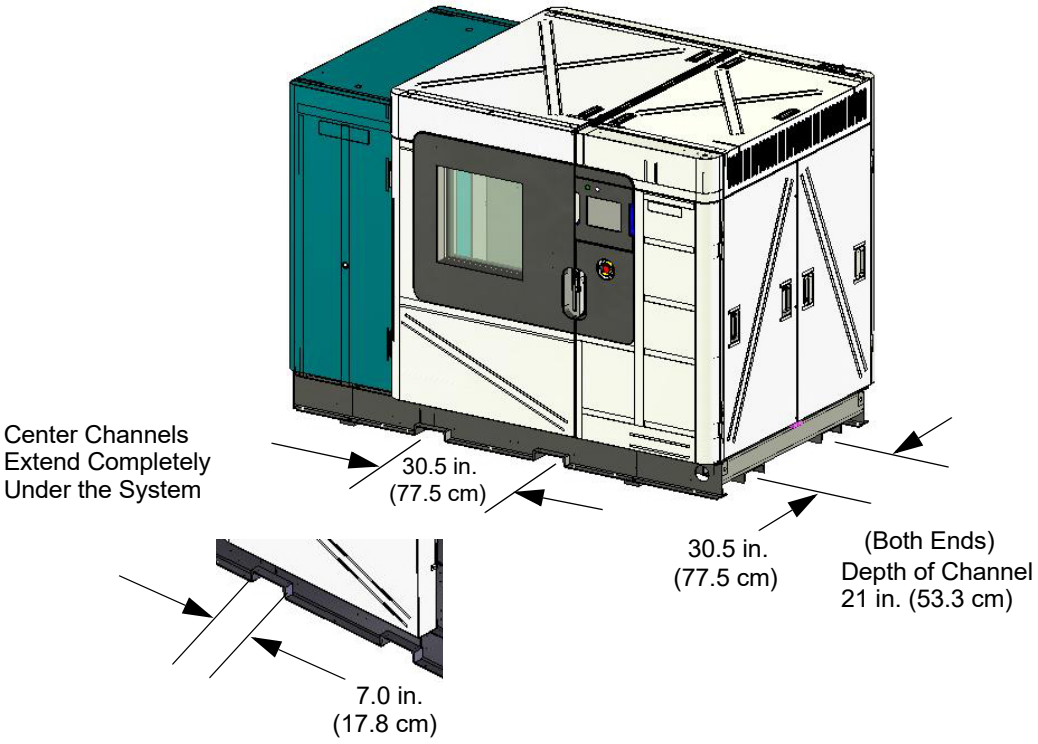
- Basic hand tools (powered screwdriver or drill with Phillips bit).
- Forklift truck of sufficient size to raise the system from the shipping skid.

FORKLIFT TRUCK REQUIREMENTS

The F900 is very heavy and requires a forklift truck with the following minimum capabilities:

- Ability to lift 6325 lbs. (2875 kg) if the system is uncrated.
- Ability to lift 7247 lbs. (3294 kg) if the system is crated.
- The forks on the forklift truck must be at least 72 in. (182.9 cm) long to fit under the length of the skid.
- The forks must spread to at least 30 in. (77.5 cm) to fit in the forklift channels.
- The width of the forks must not exceed 7 in. (17.8 cm).

Figure 2: Forklift Channels



MOVING CRATED SYSTEM

Warning: The system weighs 7247 lbs. (3287 kg) including the crate. Make sure equipment and personnel are capable of moving the system.

The F900 shipping skid is designed to be moved only from the ends of the shipping skid.

Figure 3: Crated System



UNPACKING THE SYSTEM

REMOVE SHIPPING MATERIALS

1. Unscrew and remove the individual runner boards from the top of the crate.

Warning: Wear safety glasses when removing the shipping bands.

2. Cut and remove the shipping bands.
3. Unscrew and remove all four sides of the crate.

Caution: Use care when removing the plastic wrap to avoid scratching the system surfaces.

4. Carefully remove the plastic wrap from the system.

INSPECT SYSTEM EXTERIOR

Inspect the system exterior for dents and scratches. Immediately report any damage to Stratasys and the shipping company.

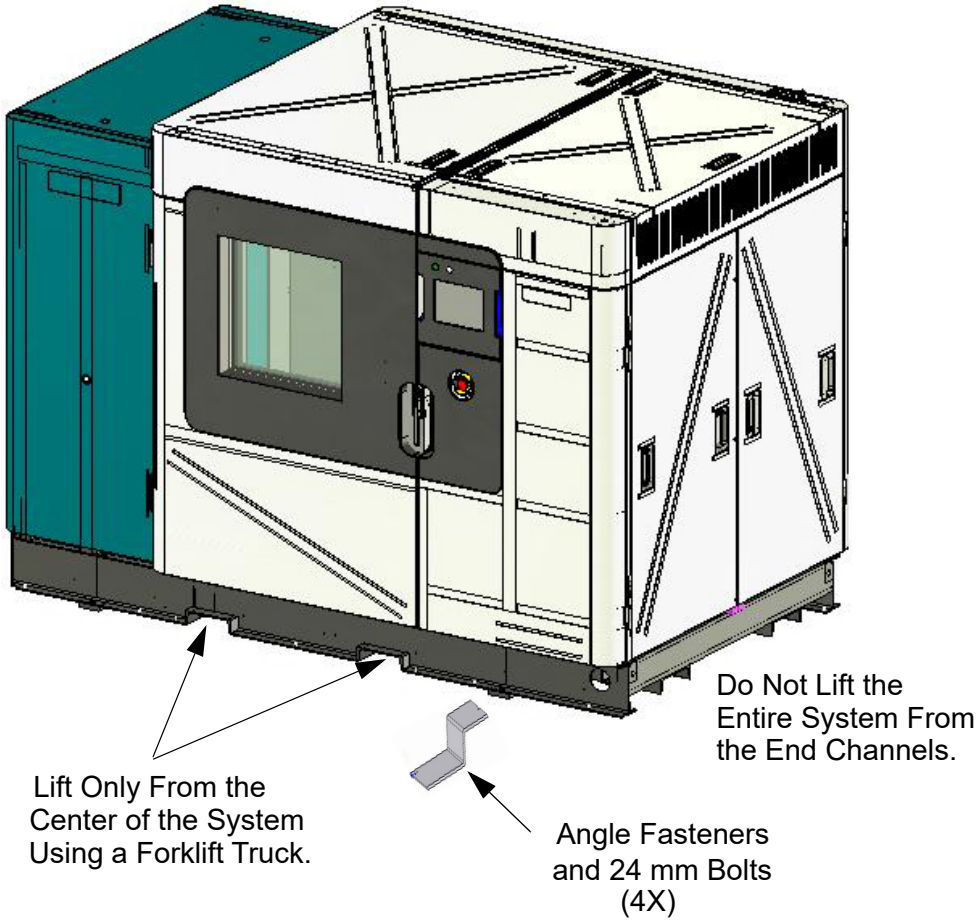
REMOVE SYSTEM FROM SHIPPING SKID

LIFTING THE SYSTEM

Remove all angle fasteners attaching the F900 to the shipping skid. Use a forklift truck to lift the system from the shipping skid. The system can be lifted only from the center forklift channels. Lifting the entire system from either end may result in damage to the system.

The shipping skid with attached shipping straps can be positioned by using a forklift truck. Make sure the shipping straps are secured to the forklift truck before moving.

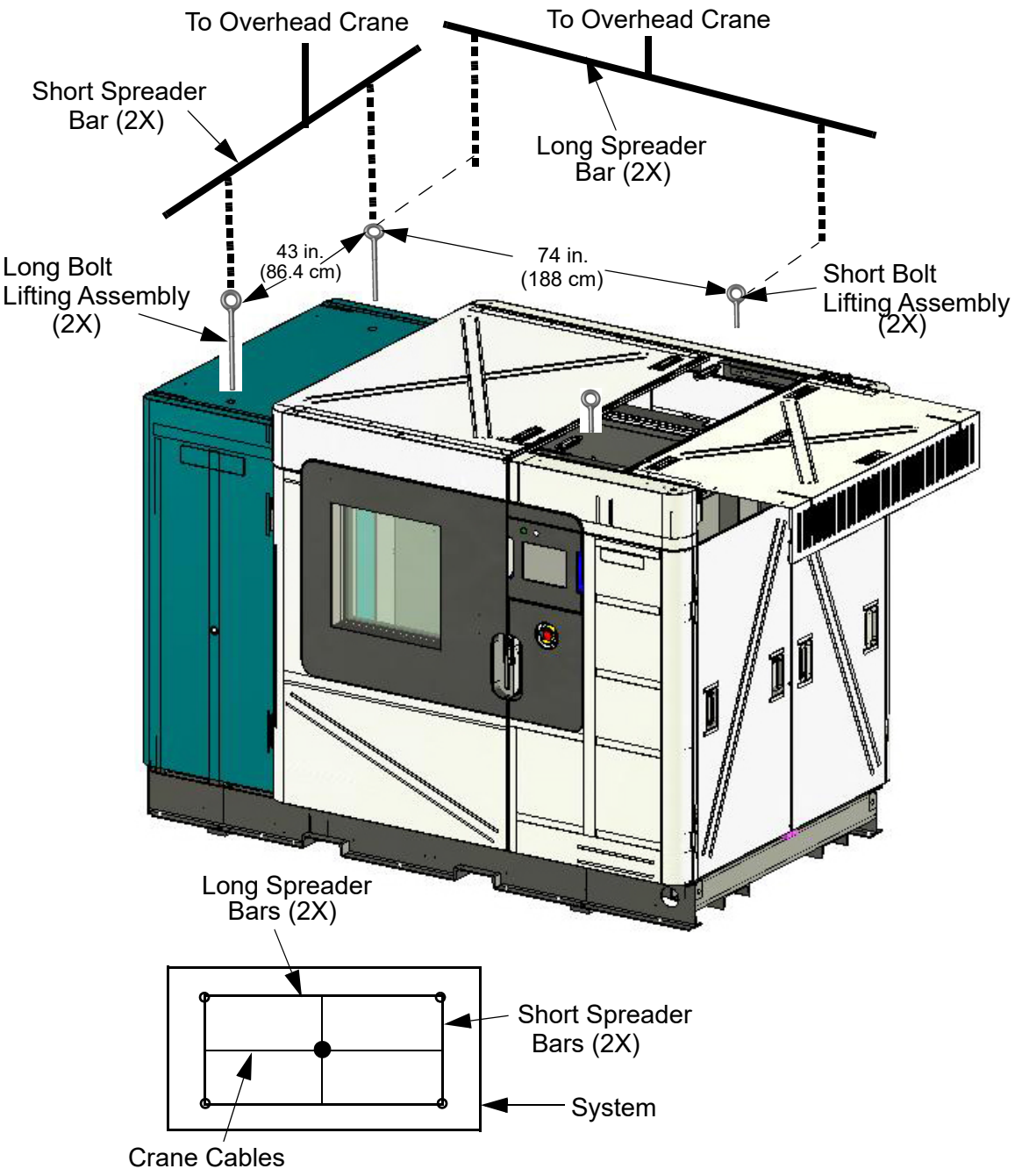
Figure 4: Lifting the System



LIFTING BY CRANE

If lifting by an overhead crane, four spreader bars must be used. Open the right top slide cover. Two spreader bars with a span of 43 in. (86.4 cm) and two with a span of 74 in. (188 cm) must be used to distribute the weight of the system and prevent bending of the lifting assemblies when lifting. Connect the spreader bars to the lifting assemblies screwed into the top of the system frame.

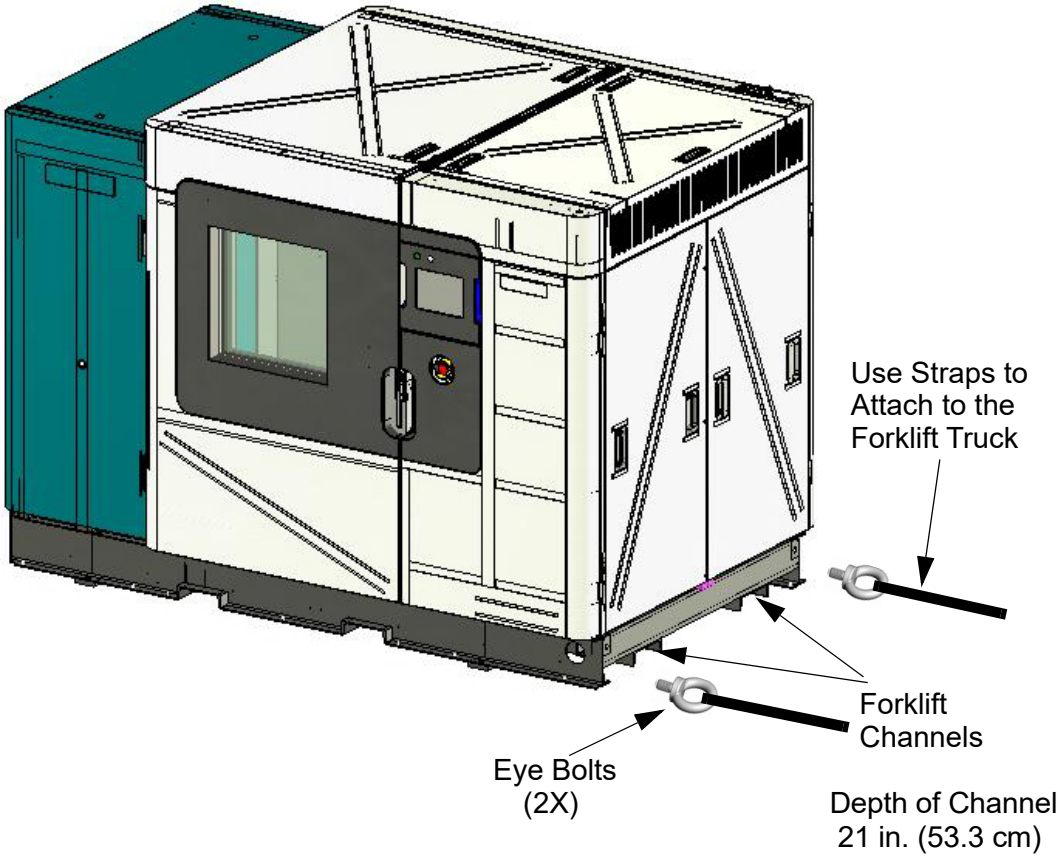
Figure 5: Lifting by Crane



MOVING THE SYSTEM

The system can be moved on its casters by using a forklift truck under the end forklift channels. Attach two eye bolts to one end of the system. Make sure to attach nylon straps from the eye bolts on the system to the forklift truck. This provides stability and control while moving the system.

Figure 6: Moving the System



TRANSPORTING TO A NEW LOCATION

When transporting the system to a new location, tie downs (front and back) must be used to secure the system. Teflon shields must be used so the panels of the system will not be marred.

Figure 7: Tie Down Locations (Front View)

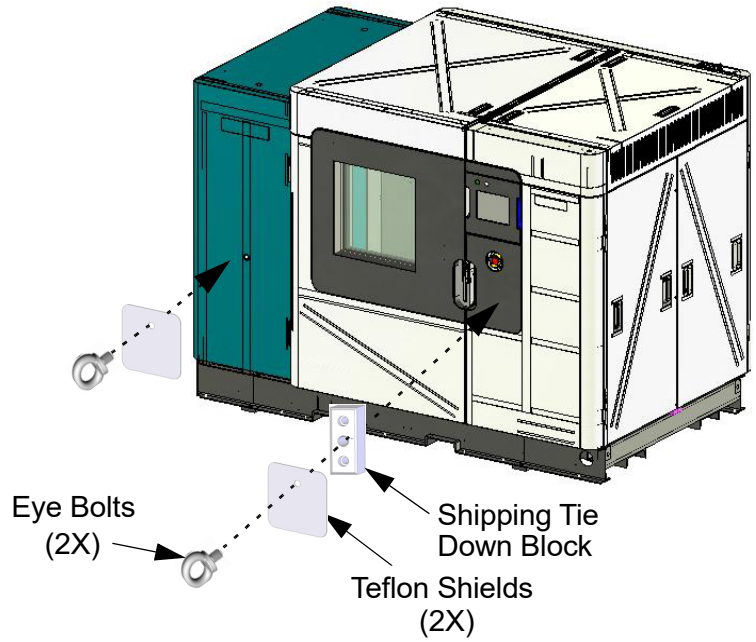
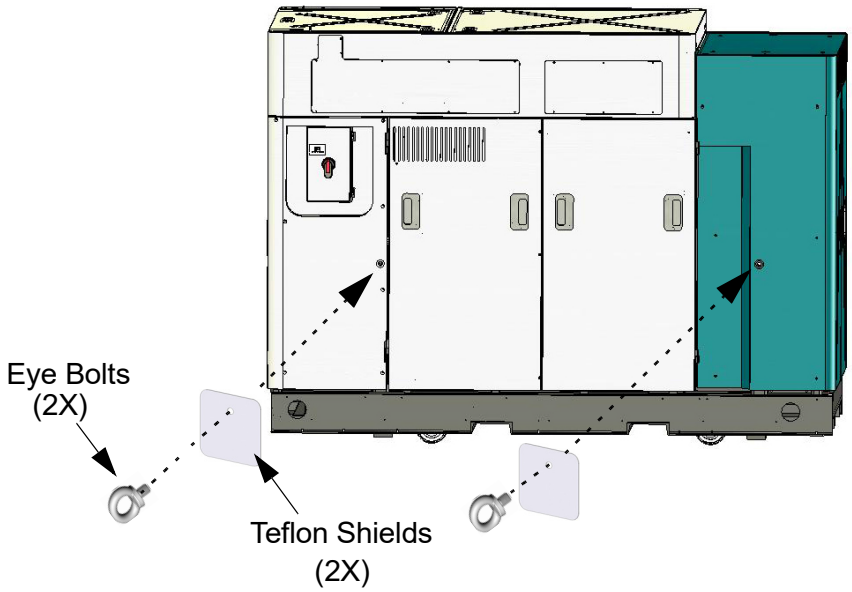


Figure 8: Tie Down Locations (Back View)



SERVICE CONNECTIONS

Caution: A licensed electrician must perform all wiring from service connection to the system - including all connectors, cables, and proper strain relief.

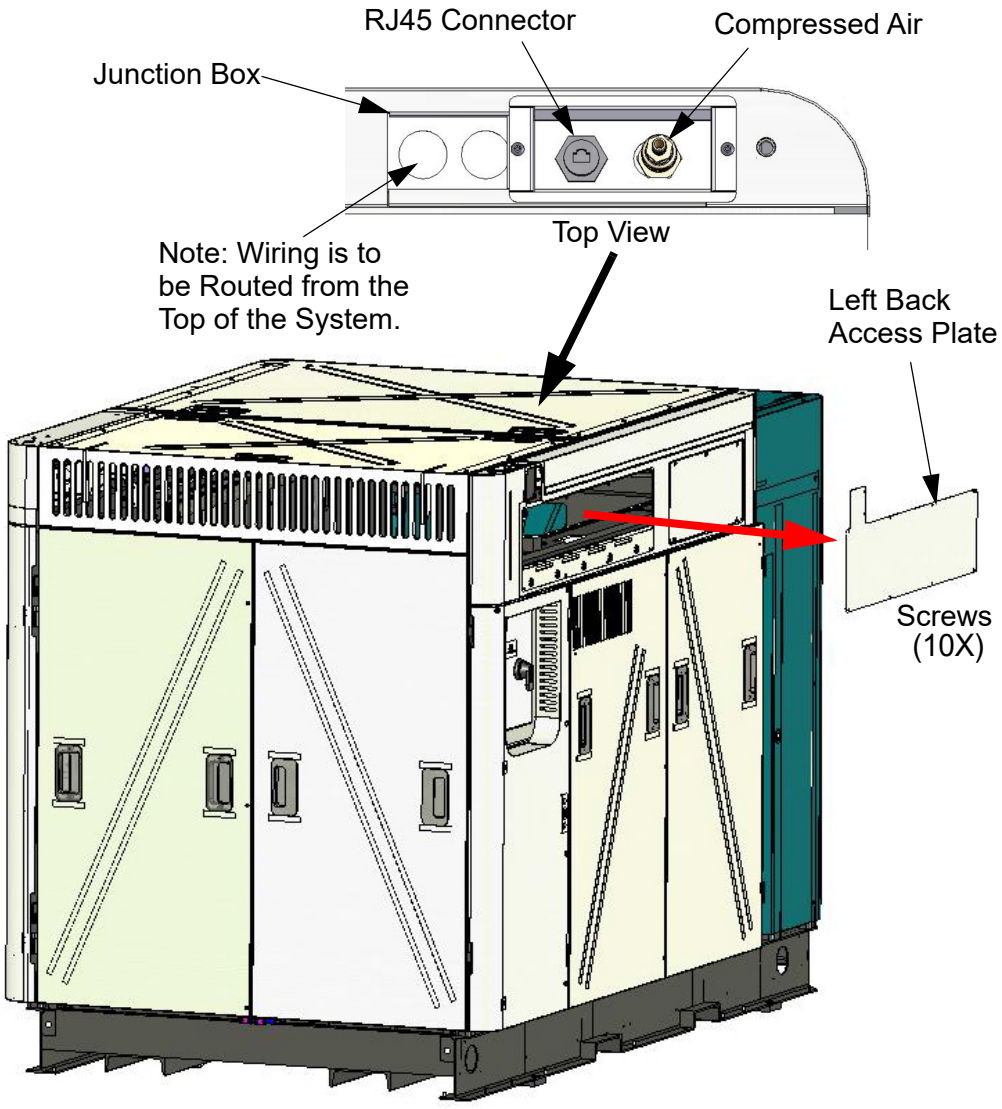
Comply with all applicable local and national electric codes.

1. Remove 10 screws that attach the Left Back Access Plate to the system, This provides access to the electrical junction box. (Figure 9)

Caution: Make sure to replace the back panel after the system is wired.

2. Wiring is to be routed from the top of the system to the fuse blocks.

Figure 9: Back Panel Removal



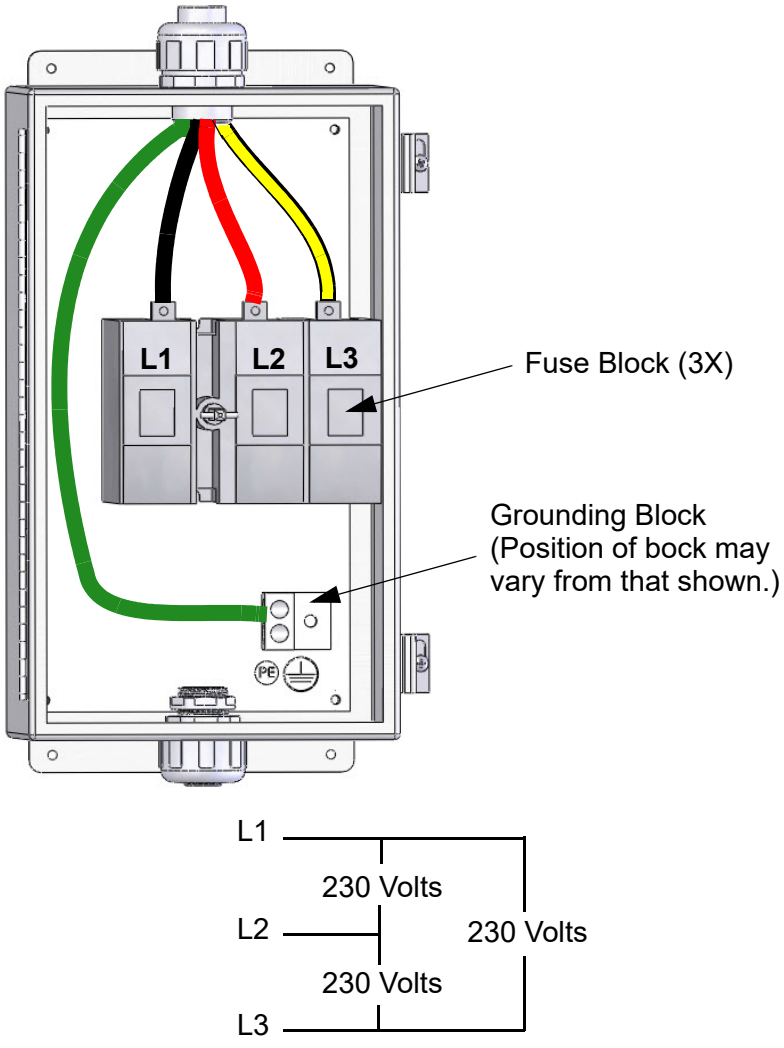
3. Connect the system to the electrical service as follows (Figure 10):

Warning: HIGH LEAKAGE CURRENT. Earth connection essential before connecting supply.

- Line 1 connects to fuse block L1.
- Line 2 connects to fuse block L2.
- Line 3 connects to fuse block L3.
- Ground wire connects to the grounding block (minimum 10 mm^2, 7AWG cu).

Note: A licensed electrician must perform all wiring from service connect and system including connectors, cables, and proper strain relief. Consult a licensed electrician to comply with all applicable local and national electric codes.

Figure 10: Line Connections



COMPRESSED AIR CONNECTION

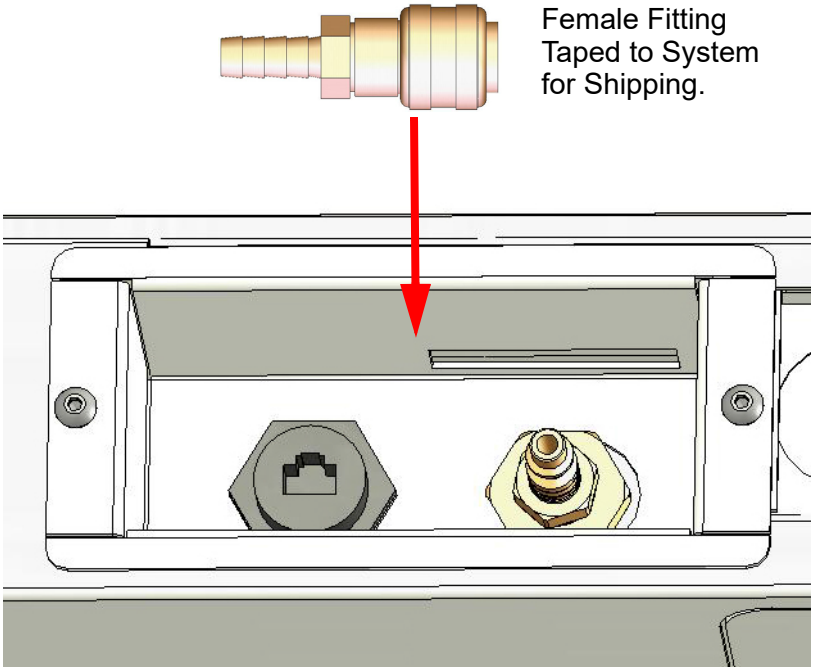
There are 3 options for coupling the compressed air source:

1. Clamp a 3/8 inch ID hose to the installed female removable fitting (the female has a 3/8 inch hose barb).
2. Remove the female half of the quick disconnect and attach to the male coupling half (i.e., if the installer does not want to use the hose barb). The female coupling must receive a male nipple meeting dimensional standard A-A-59439,Body Size 3/8"/ISO-6150-B-15.

Note: The following method will not allow a quick disconnection from the air supply.

3. Remove the installed male/female quick disconnect and attach to the 1/2 inch NPT(F) thread.

Figure 11: Supplied Compressed Air Fitting



info@stratasys.com

STRATASYS.COM

HEADQUARTERS
7665 Commerce Way, Eden Prairie, MN 55344
+1 888 480 3548 (US Toll Free)
+1 952 937 3000 (Intl)
+1 952 937 0070 (Fax)

2 Holtzman St., Science Park, PO Box 2496
Rehovot 76124, Israel
+972 74 745-4000
+972 74 745 5000 (Fax)

ISO 9001:2008 Certified
© Copyright 2018 Stratasys Inc. All rights reserved.

For more information about Stratasys systems, materials, and applications call 888.480.3548 or visit www.stratasys.com.

DOCUMENTATION FEEDBACK

Customers, resellers, and Stratasys employees are encouraged to send comments about our documentation and training to c-support@stratasys.com. We greatly value your comments, review all of them, and use them to improve subsequent releases of the documentation. In your email message please include the document title, part number (located on the front cover), and page number. Please note that we do not respond to general questions or support requests submitted to this email address.