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Z Corp Z650 3D printer



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## ***Executive Summary***

### **The Issues...**

Berlin Packaging is looking to improve their 3D printing capacity and capability to create models during the design cycle. While the current model provides unique capability an upgraded unit will provide increased capacity, improved speed, improved color, and enhanced applications.

### **The Goals...**

Berlin Packaging is a leading supplier of rigid packaging products and services whose creativity and expertise allow them to create dynamic and imaginative solutions. Berlin Packaging is looking to align themselves with the best design processes and work with a quality staff of technical experts to leverage the full potential of 3D Printing.

The goals of Berlin are:

- **Improved Model Making**
- **Larger Build Sizes**
- **Highlight product innovation**
- **Improved Color**
- **Better ease of use**

### **The Solution...**

MasterGraphics offers the Zcorp 650 solution that will support Berlin Packaging design requirements outlined above. Our better understanding of your company along with our experience in the Manufacturing Industry best positions MasterGraphics to effectively assist Berlin Packaging design with today's needs and future goals.

The following proposal includes:

- *Increased Capacity and Innovation:* The Zprinter proposed will provide an increased build envelope which will allow larger parts to be printed. In addition, the Zprinter will reduce the build time **greatly** and **improve color**.
- **Automated Office Friendly Units:** Automated material handling, negative pressure and quiet operation will offer great improvements over your current configuration
- *Superior cost of ownership:* All Zcorp units provide the lowest cost of ownership in the industry **at about \$3.00 per cu. in.**
- *Training:* MasterGraphics installation and training allows customers a quick start to producing quality parts from the start.
- *Support:* MasterGraphics service people are factory trained supporting over 60 units in the field.



## ***Solution Detail***

The Z650 deployment will deliver benefits across a range of areas:

- Allow Better Designs
- Shorter design Cycles
- Reduce the time by days for creating certain larger models.
- Standardize Design review process
- Reduce the time required for Design reviews in sales workshops.
- Improve accuracy of early stage Focus Group survey results

The Z650 has been determined to have the highest value for Berlin Packaging design. This implementation of Z Corp. 3D Printing Technology will be configured to enable easy, fast, robust and standardized visualization of 3D CAD data. This configuration will significantly reduce the time required for creating models

The implementation will comprise:

- ZPrinter 650
- Initial Supply Order
- Delivery, Installation, and Set Up
- 2 Days of End User Training
- Ongoing Support and Process Improvements

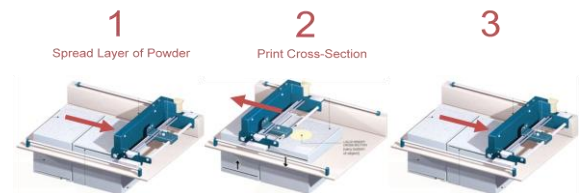




## Zcorp Benefits

### Productivity

- Z Corp is the only 3DP that prints entire layers at a time
  - 5-10x faster than any other system
  - More models in less time
  - Nest Objects!



### Model Quality

- Z Corp 3DP has the highest resolution of any 3DP
  - Resolution of 2 to 4 1/1,000<sup>th</sup> of an inch in all dimensions
  - Seamless material characteristics
- Z Corporation is the only supplier of color 3D Printers in the world



### Cost

- Cost Z Corp is the only 3DP system that does not rely on expensive plastic polymers
  - Total model costs less than one half of nearest competitor
- Z Corp is the only 3DP system that does not use support structures
  - No expensive waste material
- Most productive 3D Printer available
  - Higher productivity means lower machine cost per part
- Powder fully utilized
  - Unused powder is recycled for reuse



### Ease of Use

- Automated set-up and self-monitoring
  - Automated powder loading and recycling
  - Snap-in binder cartridges
- Requires minimal training and no expertise
  - Intuitive control panel makes operation simple





## Zcorp Benefits Continued

### Office Compatible

- Active & passive dust containment
  - Continuously operating, quiet vacuum maintains negative pressure to capture airborne dust
  - Closed-loop powder loading, removal and recycling contains powders within the envelope of the machine
- Office-safe, eco-friendly build materials
- No hazardous liquid waste



### Z Corp. 3D printing can produce a large range of 3D modeling options, including:

- Full-color
- Large Parts
- Finished Parts (Painted and Assembled)
- Machinable Parts





## Z650 Pricing Outline

| <b>Base System: Z650</b>                                              |                                                                                                                                                                                                                                                                                                                                                                 |                            |
|-----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| ZPrinter® 650 3D Printer                                              | ZPrinter® 650 3D Printer- 3 Month Warranty in North America                                                                                                                                                                                                                                                                                                     | <b>\$59,900.00</b>         |
| Extended Warranty                                                     | 1 Year Extended Warranty- The extended Warranty is a 9-month extension to the standard 90-day warranty; providing coverage for one full year from the date of shipment. Covering phone support, repair parts, repair labor, annual preventative maintenance, back up model support and 1 Free ZNet registration                                                 | <b>\$6,750.00</b>          |
| Consumable Starter Kit                                                | zp®150 Starter Kit : approx. 2,600 cu. in. (19,664 cu. cm.) of part build capacity<br>Plus- <ul style="list-style-type: none"> <li>Mastergraphics will also included 2 black binder cartridges (\$312) and another bucket of powder (\$448)</li> <li>Zcorp will take back any unused supplies for your current unit and provide a consumable credit.</li> </ul> | <b>\$7,950.00</b>          |
| Installation\Training                                                 | Training at Customer Site (2 Day)                                                                                                                                                                                                                                                                                                                               | <b>\$1000.00</b>           |
| ZEdit Pro                                                             | Advanced File Preparation Software                                                                                                                                                                                                                                                                                                                              | <b>1 Licenses Included</b> |
| <b>Base System Total Cost</b>                                         |                                                                                                                                                                                                                                                                                                                                                                 | <b>\$ 75,600.00</b>        |
| <b>Less Trade in of Z510</b>                                          |                                                                                                                                                                                                                                                                                                                                                                 | <b>(\$9,000.00)</b>        |
| <b>Less Additional Discount on Start Kit</b>                          |                                                                                                                                                                                                                                                                                                                                                                 | <b>(\$500.00)</b>          |
| <b>Total Purchase Price</b>                                           |                                                                                                                                                                                                                                                                                                                                                                 | <b>\$ 66,100.00</b>        |
| <b>4 Year Finance Option Full Payout (Includes all maintenance)</b>   |                                                                                                                                                                                                                                                                                                                                                                 | <b>\$2,228 / month</b>     |
| <b>Or 4 Year \$ 1,498 per month and maintenance billed separately</b> |                                                                                                                                                                                                                                                                                                                                                                 |                            |
| <b>Options &amp; Accessories</b>                                      | The items below are not included in the above base system                                                                                                                                                                                                                                                                                                       |                            |
| zp®150 "Super" Starter Kit                                            | zp®150: approx. 5,400 cu. in. of part build capacity                                                                                                                                                                                                                                                                                                            | <b>\$ 14,475.00</b>        |
| Z9001 – Zbench                                                        | Zbench System                                                                                                                                                                                                                                                                                                                                                   | <b>\$ 1,800.00</b>         |
| Z650 Service Contract                                                 | One Year Service Contract – renewal Period                                                                                                                                                                                                                                                                                                                      | <b>\$ 9,000.00</b>         |

**Proposal does not include any taxes, shipping\handling or expenses related to the above items**



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## About MasterGraphics

MasterGraphics has served the Design Industry since 1949. Over this time, we have adopted a “continuous improvement” mindset. Take what we have learned...and make it better. To fulfill our top priority - satisfying customers by providing true solutions - we continue to listen to you, our clients, in order to respond to and to anticipate your changing needs and business challenges.

Many people manage the use of design information by only thinking about the technology. We think first about the business and then determine how digital technology can enhance the business. Our mission is to help improve your entire flow of CAD information - from the original design, to effectively sharing and managing the digital data, through the most efficient method of distributing and printing the information. We strive to understand the growing challenges of this process and to continually learn about your specific needs for:

- Printing and Distribution Solutions
- CAD Technology
- Document Management Systems
- Collaboration Tools
- Training and Consulting Services

MasterGraphics is one of the Midwest's leading providers of technology solutions for the manufacturing, building, civil and education industries, with offices in Wisconsin, Illinois and Minnesota.

In closing, we would like to thank you for the opportunity to earn your business and to find new ways to partner for our combined success. If you have any questions, or if we can be of any other assistance, please don't hesitate to contact us.



## Customer Testimonials

Thank you again for being so helpful and quick! I have always been impressed with the efficiency of MasterGraphics and commend you on your company's customer service.

Andrea Clunie  
Abbott Labs



I have been very impressed with the ease of getting a hold of MasterGraphics' technical support and their promptness in finding solutions for (our) questions...

(Your) training professionals are not only extremely knowledgeable, they have been very willing to customize the training sessions to accommodate our firm's particular needs.

Eric Bauman  
Boldt Technical Services



(Your technical staff) has thorough knowledge of the software as well as practical experience with our type of projects. The training has been well received. I've been working with Mastergraphics for over 15 years and have always been pleased with their focus on the customer.

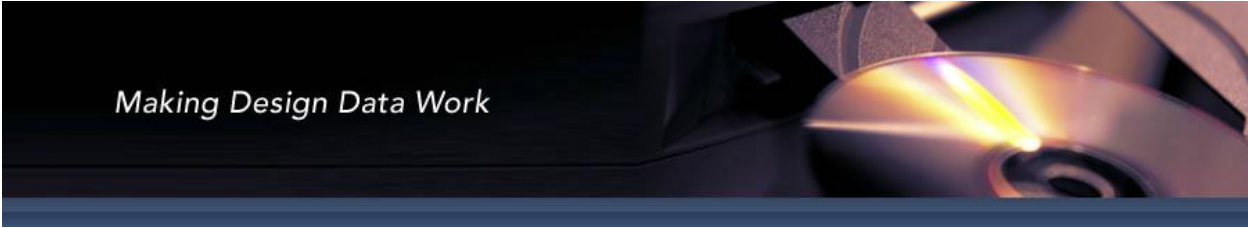
Mike Jensen  
Donohue & Associates, Inc



(Our Account Manager) has helped us tremendously with our expanding company. His sense of urgency and flexibility has helped us greatly with us staying on task with our growth.

Peter Lanphier  
Storage Systems Midwest, Inc.





*Making Design Data Work*

## Zprinter 650 Details

### Machine specifications:

#### Features

- Color: 390,000 colors (5 print heads, including black)
- Resolution: 600 x 540 dpi
- Minimum Feature Size: 0.004 inches (0.1 mm)
- Automation: Full (automated setup and self monitoring / automated powder loading / automated powder recycling and removal / snap-in binder cartridges / intuitive control panel)
- Vertical Build Speed: 1.1 inch/hour (28 mm/hour)
- Build Size: 10 x 15 x 8 inches (254 x 381 x 203 mm)
- Material Options: High Performance Composite
- Layer Thickness: 0.0035 - 0.004 inches (0.089 - 0.102 mm)
- Number of Jets: 1520

#### Specifications

- File Formats for Printing: STL, VRML, PLY, 3DS, ZPR
- Equipment Dimensions: 74 x 29 x 57 inches (188 x 74 x 145 cm)
- Equipment Weight: 750 lbs (340 kg)
- Power Requirements: 100-240V, 15-7.5A
- Regulatory Compliance: CE, CSA

- 10/100 Base T Ethernet Supported
- Recommended operating conditions:

#### Temperature

Maximum Range: 50F to 85F

Recommended Range: 55F to 80F

#### Humidity

Maximum Range: 15% to 70% RH, non-condensing

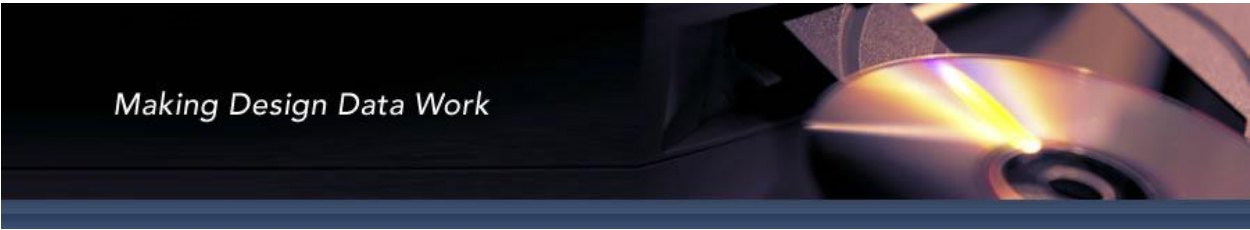
Recommended Range: 20% to 60% RH, non-condensing  
(may experience sub-optimal performance at extremes)

### Power Requirements at Site of Installation:

- ZPrinter 650: 90 - 100 VAC / 14.4 Amps / 50 Hz – 60 Hz , 100 - 120 VAC / 14.0 Amps / 50 Hz – 60 Hz or 200 – 240 VAC / 6.2 Amps / 50 Hz – 60 Hz

### ZPrint, ZEdit and ZEdit Pro System Software Specifications: (One (1) seat of each included in base system)

- Z Corporation system software package provides interface between customer's CAD system and the ZPrinter 650 3D Printer.
- Software accepts solid models in a variety of file formats including STL, VRML, PLY, and 3DS.



## *Making Design Data Work*

### **Consumable Starter Kit**

- Each Consumable Starter Kit contains all the consumables required to get started making parts. The kit includes powder, binder, wash fluid, binder cartridges, and resin. Includes 1200 cubic inches of build materials.
- **zp®150 Starter Kit** Contains Z Corporation's High Performance Composite Material which can be used to make full color models with greater strength and definition than previous generation materials. Includes approx 1,200 cubic inches.

### **Training**

Training includes full training of up to five (5) operators by a Z Corporation-authorized technician. On-Site Training is performed at the Customer's site.

### **Warranty**

The Warranty covers phone support, parts and labor for the 90 day life of the warranty.

## **PC Requirements**

### **Control Computer Required at Site of Installation:**

|                    |                                           |
|--------------------|-------------------------------------------|
| Operating systems: | Windows XP Professional or Windows 2000   |
| CPU:               | 3.2GHZ or better (recommended)            |
| RAM:               | 2GB or better (strongly recommended)      |
| Display:           | 1024x768 or better                        |
| Graphic Card:      | 16 bit or better with OpenGL acceleration |
| Hard Disk:         | 1GB free space                            |
| Network:           | Ethernet 10/100 Base T                    |
| Laptops:           | Not supported                             |



## Zp150 Powder

### Best Color and Whiteness

- Brightest whites - 90% whiter than zp 131
- Largest color gamut ever - 125% larger than zp 131
- New HD color printing mode for the ZPrinter 650

### Highest strength

- Better green strength than zp 130, zp 131 for easier processing
- 40% stronger with Z-Bond 101 over zp 130\*
- 100% stronger with Water Cure over zp 140

### New finishing option - Water Cure with Epsom salt

- Easy and user-friendly post-processing option – only water and salt are required to seal and strengthen your printed parts
- Works with color models for draft color

### Great Versatility

- Compatible with Water Cure, Wax, Z-Bond and Z-Max - something for every application
- No more choosing between powders - one powder does it all!



## Z-Max 90

Z-Max 90 is a new high strength infiltrant for use with Z Corporation 3D printed models.

### Functional performance

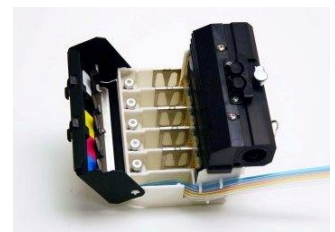
- Models infiltrated with Z-Max 90 are extremely strong, enabling use in fit and functional testing in a wide range of applications.

### More affordable

- Z-Max 90 is the most affordable functional infiltrant, costing 40% less than the original Z-Max

### Easier to use

- Z-Max 90 is packaged in pre-weighed kits, or shipped with pumps for easy dispensing and its chemistry allows significantly more time to apply





## Technology Implementation Process

The MasterGraphics Technology Implementation Process (TIP) considers three crucial elements – your people, the portfolio of technology involved, and the processes that will lead to increased productivity. It then applies three essential success factors – planning, management, and communication – to deliver a solution for your firm that is realistic, achievable, and ultimately successful.

**Plan. Manage. Communicate.**

**Planning** is the foundation to any effective project plan. Planning takes into account the individuals and departments that a change will affect as well as the tactical challenges and business issues they will encounter. Proper planning results in the following advantages:

- Sets clear expectations and battles “scope creep,” minimizing stalled projects
- Establishes success metrics and milestones
- Manages any perceived risks
- Identifies potential problems early in the process and takes steps to resolve them
- Maximizes productivity gains by focusing solutions on your particular needs

**Managing** involves the process of clearly identifying goals of a project, establishing a well-defined plan, and then taking action to accomplish those goals. A clear understanding of your business objectives and their relationship to the tactical issues is essential for MasterGraphics to provide the proper guidance, recommendations, and services.

**Communication** will become imperative once a plan has been established. There are many different roles within any department. New processes will affect users in different ways; therefore, users will be interested in different aspects of the plan.

A sample Implementation Plan might consist of:

- Order placed (include supplies)
- Identify space, electrical, and environmental requirements
- Identify network/communication requirements
- Complete site check
- System delivery
- System installation
- Conduct customer training
- Develop operation procedures Complete Customer Satisfaction Checklist
- Ongoing Support
- First customer support meeting



## Field Service Capabilities

Everything you need—and the expertise to keep it all working flawlessly.

Z Care Premium is our most comprehensive level of Printer Service, designed for the customer that demands top performance and maximum uptime from their 3D Printer. Z Care Premium covers Preventive Maintenance (PM), phone support, repair, and travel. In addition, Z Corp. Provides one free registration to our annual ZNet Conference, and backs the customer up with model printing should their printer be out of service for an extended period.

### Technical Staff

- Certified Field Service Technicians
- Service Manager
- Systems/Network Analysts
- CAD Applications Engineers (Autodesk Software)

### Responsiveness

- 1-800 Hotline from 8:00 AM to 5:00 PM
- 24/7 Message Line
- All calls and call history logged and tracked electronically
- 1-Hr. Call-Back, Same Day/Next Day Onsite Response

### Experience

- 167 Man-Yrs. Field Service Experience
- 1000-plus Wide Format Systems Installed
- 80+ 3D printers supported
- Hardware Service Integrator Since 1986

### Resources

- Service Vans Stocked With High-Use Parts
- \$250,000 Typical In-Stock Part Inventory
- Overnight Shipping Agreements With Part Vendors

### Accountability

- Ongoing Service Response Tracking
- Customer Surveys – Continual Customer Satisfaction Tracking



## Full-Service Maintenance Agreements

We always recommend Full-Service Maintenance to protect your investment and to make sure your equipment is always at its best. A variety of plans and service options are available to meet your individual volume requirements.

Full-Service Maintenance offers you these features and benefits:

| Feature                                                                            | Benefit                                                                                                                                                        |
|------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Call back within 1 hour of your notifying MasterGraphics that service is required. | Prompt acknowledgment of your call and estimated arrival time.                                                                                                 |
| Software fixes/patches, free software updates.                                     | Provides the most current, up-to-date software at no additional cost.                                                                                          |
| Customer Application Support.                                                      | As your business requirements change, we are there to advise and help.                                                                                         |
| Fee-based time and coverage options are available.                                 | Flexibility to respond to your special needs and emergencies.                                                                                                  |
| Free hardware and firmware retrofits.                                              | Things change. Improvements are identified and developed. You always have the latest at minimal or no additional cost.                                         |
| <b>Live support personnel to answer your questions and/or concerns.</b>            | <b>You will not get an electronic push-button response when you call for customer support. With Master Graphics, actual people are always at your service.</b> |

MasterGraphics provides you with the technology to solve your business problems and the service to ensure your Xerox products are functional, thereby maximizing your investment.



*Technical Support Backed By Experience*

## Software Support Plans

It happens to every design professional –and all too often. What should have been a five-minute tweak is turning into a three-hour problem. Three hours you don't have. So what's the alternative? A call to MasterGraphics' dedicated support team.

As a value-added solutions provider, MasterGraphics has the right mix of services to optimize your entire design process. And when it comes to keeping you up and innovating, our technical support services are your very first line of defense.

Our recommendation for your firm is the Standard Support Plan. This plan includes

- Unlimited Phone Support
- Unlimited Email Support
- Software Service Pack Notifications

Additional benefits include

- Web-based tools to resolve issues
- Cross-disciplined support staff
- Community support through User Groups

If a technical support plan is not purchased, support is available on a cost-per-incident basis of \$65.