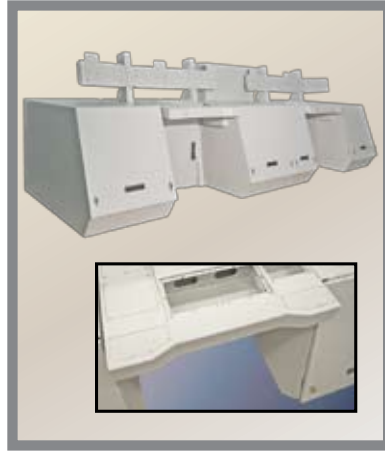


# CUSTOM DESIGN SOLUTIONS



## Applications and Capabilities

# INTRODUCTION

## Optima EPS - An ELMA Company

Optima EPS, an Elma company, is a designer and manufacturer of custom and standard electronic packaging solutions. The company provides everything from server racks, MIL-spec cabinets and security consoles, up to complete custom enclosure systems. The company offers a fast, flexible response to customer needs and extensive practical knowledge in tailoring solutions to specific applications.

Elma Electronic is a worldwide manufacturer and supplier of integrated electronic packaging systems. The company has been a worldwide supplier of dependable, high performance products for over 35 years. Elma operates four facilities in the continental United States plus has locations in Switzerland, Germany, France, the United Kingdom, China, Romania and Israel.

- 1962 - Formed from Scientific Atlanta
- 1966 - RA/RC range of vertical cabinets introduced
- 1973 - "Instrumate" range introduced
- 1987 - SA/SC range EMC cabinets introduced
- 1988 - Form 4 range introduced with UL & CSA approval
- 1994 - Gained ISO 9001 recognition
- 1995 - M1/M2 range of seismic cabinets introduced
- 2003 - Gained ISO -2000 recognition
- 2004 - Acquired by Elma-Synergy between Elma and Optima - Electronic Packaging Specialists
- 2006 - AT range of ATCA/Blade server cabinet introduced

## WHY CHOOSE OPTIMA?

**Flexibility** | Optima tailors solutions to individual applications to ensure fast and cost-effective results.

**Experience** | Extensive practical experience in packaging electronic systems is used to minimise the time taken to develop new customised solutions without compromising system performance or reliability.

**Compatibility** | Because we design and manufacture everything in-house, Optima guarantees compatibility, consistency and reliability.

**Global resources** | With manufacturing in the USA and Europe customers benefit from local service backed by global resources.

## Cabinets



## Desk and Console Systems



## E-Cases & Wall Mount



## System Platforms



## Backplanes





With over 110,000 sq. ft. of design and manufacturing facility Optima EPS has the capability to design and build a packaging system to suit your needs. Optima EPS has the following capabilities;

- **110,000 SQ. FT. FACILITY**

- **DESIGN**

  - AutoCAD**

  - 3D Solid Modeling**

- **MANUFACTURING**

  - CNC Punching**

  - Weld TIG/MIG/SPOT**

  - Paint – Water or Powder**

- **ASSEMBLY**

  - Electro-mechanical**

  - Component Integration**

  - Quality Assurance**

- **SPECIAL SERVICES**

  - Tool Making**

  - Silk-screening**

  - Environmental Testing**

  - Agency Certification**

# SOLID FOUNDATIONS > CUSTOM SOLUTIONS

Optima EPS offers a comprehensive selection of cabinets for Military, Industrial, Broadcasting, Lab, Datacenter, and Telecom applications. Available with premium features for providing solutions to meet; EMC shielding, seismic, MIL-STD, thermal and cabling demands of the most critical electronics.

Each of Optima's industry specific cabinet families are available in a wide range of standard sizes, with extensive choices of: top, bottom, side panel, base, door and color options, allowing you to customize your unique enclosure system. The modularity of the Optima system provides the added flexibility to make modifications as your requirements evolve saving time and money. A complete offering of accessories such as: shielding kits, panels, shelves, slides, cooling fans, joining brackets and power products insure that Optima has the solution to your application needs.



STEEL WELDED WITH  
CUSTOM ANTI-TILT BASE

HARSH ENVIRONMENT  
COMPUTER SYSTEM



MA SEISMIC, WITH  
CUSTOM DOOR/GRAPHICS



TEST AND MEASUREMENT  
CABLE MODEMS



SUPERCOMPUTER SERVER



TELECOM  
STRUCTURE  
MATF SEISMIC



# RUGGED MOBILE RC CABINET



## MARKET:

- Mobile Military

## APPLICATION:

- Mobile Digital Satellite
- Communication Vehicle

## PRODUCT DESCRIPTION:

- Ruggedized RC Cabinet,
- 34U, 36" depth.
- With mounted base plate for isolator mounting

## PROBLEM:

The customer needed a COTS cabinet, but more ruggedized for mobile vehicle use. The cabinet needed to be lightweight, but strong.

## OPTIMA SOLUTION:

Using the base RC platform, Optima provided several solutions. First, we needed to enhance the ruggedization of the RC. So, we welded in heavy corner members for stability. The cabinet was gusseted with triangle plates in each corner member. The base was mounted to the floor with a specially designed plate to fit with the isolator scheme of the vehicle.

The height of the cabinet was an issue inside the vehicle, but with Optima's modular design, we were able to come up with a custom 34U height without special tooling. This saved time, effort, and money for the customer.

Optima won the design because of our expertise in rugged design and our ability to come up with a creative solution for their special mobile environment needs. This was achieved while keeping the cost low and lead-time brief.

# Optima EPS

Cabinets & Enclosures  
An ELMA Company

## MOBILE IT RUGGED



### MARKET:

- Mobile Computing

### APPLICATION:

- Mobile Computing  
Communication Trailer

### PRODUCT DESCRIPTION:

- Seismic M2, 2-Bay Cabinet
- 36U, 42" Depth
- Double French Doors  
Acrylic (front)  
Perforated (rear)

### PROBLEM:

The customer needed an attractive cabinet, but more ruggedized for mobile vehicle use. The cabinet needed to be lightweight, but strong.

### OPTIMA SOLUTION:

Using the base Seismic platform, Optima provided an attractive solution. First, we chose the M2 extrusion for its robust design and modified the Front and Rear doors to a Double French design. With a thick 7-Gage steel for the base in our Seismic line, The customer was able to bolt the cabinet directly to the floor of an existing semi-trailer.

The height of the cabinet was an issue inside the trailer, but with Optima's modular design, we were able to come up with a custom 36U height without special tooling. This saved time, effort, and money for the customer.

Optima won the design because of our ability to come up with creative solutions to their special needs, while keeping the cost low and quick lead-time. Our expertise and multiple designs in Seismic enclosures was another factor.

# Optima EPS

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# SHIPBOARD MIL-SPEC CABINET



## MARKET:

- Military/Defence

## APPLICATION:

- Shipboard Electronics

## PRODUCT DESCRIPTION:

- M1/M2-Series Cabinet
- EMI/RFI Shielded
- 35U, 24" wide, 30" depth
- Designed similar to a NEMA 4 "type" enclosure

### PROBLEM:

The Navy needed a rugged, sealed/outdoor type cabinet which also met a high level of EMC protection.

### OPTIMA SOLUTION:

Optima used an M-Series extrusion as the frame platform and worked closely with its gasket vendor to select a unique shielding gasket which also provides moisture/dust protection as well as EMI/RFI Shielding to meet an advanced shielding requirement.

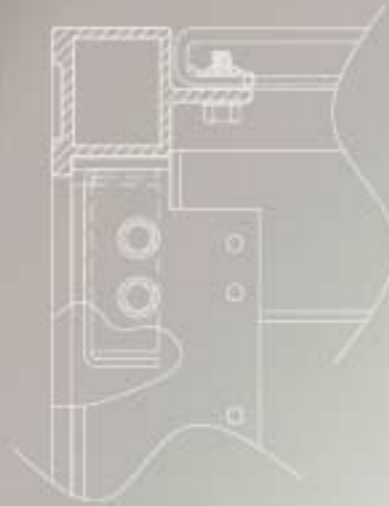
Special features included: custom EMI/NEMA type gaskets, solid top panel, bottom base plate with modifications for mounting transformer. Also included are provisions for isolators, tapped mounting rails, front door with cutout for touch-screen, removable rear panel, fixed side panels, and ground studs.

Optima was successful in winning this project because of its expertise in the design and manufacture of both rugged enclosures and in EMI/Shielding. This expertise was used to develop a product solution that combined these requirements into a single enclosure.

# Optima EPS

Cabinets & Enclosures  
An ELMA Company

# SCIENTIFIC INSTRUMENT CABINET



## MARKET:

- Scientific Measurement

## APPLICATION:

- Nano Material Analysis

## PRODUCT DESCRIPTION:

- RA-Series Cabinet
- 16U, 32" wide, 34" depth
- Rear Perforated Panel
- Internal Panel Divider
- 19" Dividing Rails
- DIN Rail
- 14" Shelves

### Problem:

The customer needed a one-stop custom cabinet solution. The cabinet needed to include wiring duct, DIN Rail for mounting scientific instrumentation and 19" rack mounting for industrial computers.

### Optima Solution:

Using the base industrial RA extrusion, Optima provided a custom solution. First, we chose the RA extrusion for its versatile design and then modified the width and depth to allow mounting of 19" equipment and DIN Rail mounted equipment in a single enclosure.

Optima won the design because of our ability to come up with a customized solution to meet the dual requirement of 19" rack mount and DIN Rail mount, while keeping a short lead-time on a customized enclosure. Our expertise and multiple designs in industrial enclosures was another factor.

# Optima EPS

Cabinets & Enclosures  
An ELMA Company



# SHIELDED SEISMIC CABINET



## MARKET:

- IT Infrastructure

## APPLICATION:

- Call Center Solutions

## PRODUCT DESCRIPTION:

- Shielded Seismic M1 Cabinet
- Coffin Style Perforated Front Door
- Perforated Rear Door

### Problem:

The customer needed an attractive cabinet, but more ruggedized for international use. They chose the Optima M1 Seismic Cabinet solution for their carrier applications.

### Optima Solution:

Using the base Seismic platform, Optima provided a robust solution. First, we chose the M1 extrusion for its rugged design and then modified the front door to a coffin style for added cabling space. The interior of the cabinet has standard 19 inch mounting provisions and a side tray for additional cabling. EMI/RFI shielding was added per Intervoice's specification.

Optima won the design because of our ability to come up with a customized solution to meet the customer's shielded and rugged requirement, while keeping a quick lead-time on a customized enclosure.

# Optima EPS

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An ELMA Company

# RUGGED CUSTOM CONSOLE



## MARKET:

- Military/Defense

## APPLICATION:

- Shipboard Electronics

## PRODUCT DESCRIPTION:

- Special Custom Console
- Designed and built to customer specifications
- Shipboard installation

## PROBLEM:

The Navy needed a durable, modular console assembly to incorporate key operator features including a "3-headed" flat-screen display and a rugged keyboard tray. This would be tested out in a lab environment with the next generation installed shipboard.

## OPTIMA SOLUTION:

Optima worked with the engineering to take their conceptual design and enhance it to assure optimum manufacturability. While engineering was extensive, the result was a creative and flexible solution which provides the modularity required and an operator-friendly design.

# SHOCK ISOLATOR HARSH ENVIRONMENT



## MARKET:

- Oil & Gas Exploration

## APPLICATION:

- Logging Truck

## PRODUCT DESCRIPTION:

- Ruggedized RC Cabinet,
- 30U, 19" wide, 24" depth.
- Special base with casters and shock isolators

## PROBLEM:

The customer needed a one-stop custom cabinet supplier for a harsh environment cabinet. The requirement also included Optima installing the customer's cable management and shelving needs.

## OPTIMA SOLUTION:

Using the base industrial RC extrusion, Optima provided a custom solution. First, we chose the RC extrusion for its versatile design and then modified the base by adding a top and bottom Isolator plate with 8 isolators sandwiched in between and casters on the bottom. Optima also installed retractable shelves, power supplies, cable retractable arms, and a drawer in assembly.

Optima won the design because of our ability to come up with a customized solution for a rugged mobile application and our ability to install customer specified options. Our expertise in rugged mobile designs in industrial enclosures was another factor.

# Optima EPS

Cabinets & Enclosures  
An ELMA Company

# SHIELDED MIL STD CABINET



## MARKET:

- Military / Defense

## APPLICATION:

- Shipboard Communications

## PRODUCT DESCRIPTION:

- Shielded Seismic M1 Cabinet
- 35U, 19" Wide, 30" Depth
- Shielded Vented Front Door and Shielded Fan Rear Door

## PROBLEM:

The customer needed a high level MIL Shielded Cabinet that would withstand Naval Shock levels. They chose the Optima M1 Seismic Cabinet solution for their difficult application.

## OPTIMA SOLUTION:

Using the base Seismic platform, Optima provided a robust solution. We started with the M1 extrusion for its proven design and then modified the Front door for cooling. The cabinet also includes rear fan for heat exhaust. MIL STD EMI/RFI Shielding was added per the government's requirement.

Optima won the design because of our ability to come up with a customized solution to meet the Shielding and Shock requirements, while keeping a quick lead-time on a customized enclosure. Our expertise and multiple design wins in Defense related enclosures was another factor.

# Optima EPS

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An ELMA Company



# EMC SHIELDED MODULAR/STACKED CABINET



## MARKET:

- Military/Defense

## APPLICATION:

- Emergency Aircraft Communications System

## PRODUCT DESCRIPTION:

- Special EMC Shielded S-Series
- 12U and 22U Modules
- Perforated Doors

## PROBLEM:

The customer needed to house various equipment co-located within a single enclosure but installed into separate modules due to issues with EMI/RFI interference.

## OPTIMA SOLUTION:

Optima developed an enclosure system with two different sized EMC cabinets (12U & 22U) attached in a single stacked configuration. This maximized the use of limited floor space while providing separate modules for mounting sensitive electronics. This cabinet utilizes special EMC gaskets with a soft foam core and a mesh nickel-plated nylon exterior. The door has a tin-plated copper gasketing tape which contacts with the foam gaskets on the frame creating a tighter seal for both EMI and cooling considerations. This gasket method provides for an advanced level of EMC protection.

Optima engineering worked diligently with the customer's designers to develop this unique enclosure solution. It has been successfully tested to meet all requirements and specifications.

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# CUSTOM LAB DESK/CART SYSTEM



## MARKET:

- Medical

## APPLICATION:

- Diagnostic Recording Platform

## PRODUCT DESCRIPTION:

- Special Custom Desk
- 34" Height, 65" Wide, 29" Depth

### PROBLEM:

The customer needed a "next generation" desk system for lab environments to house medical diagnostic equipment. This next generation needed to incorporate some features missing from the original design in addition to making it more ergonomic while also providing a reduction in the individual unit cost.

### OPTIMA SOLUTION:

Optima developed the next generation desk system to include special "RB" extrusions in lieu of a welded frame to significantly reduce unit costs. This system also incorporated new features including: better cabling access in rear and top surface, easier to remove rear panels with integrated handle pulls and quick-release fasteners, improved tower and printer bay equipment mounting, and provisions for a 3<sup>rd</sup>. LCD monitor option.

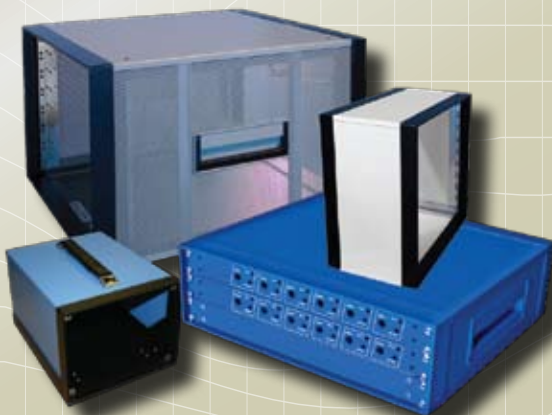
Optima engineering worked closely with the customer's design consultant to secure the business by accommodating their requests while providing useful suggestions during the design process. This resulted in a very usable design which ultimately met their overall design/cost objectives.

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# FOR ALL OF YOUR CUSTOM REQUIREMENTS:

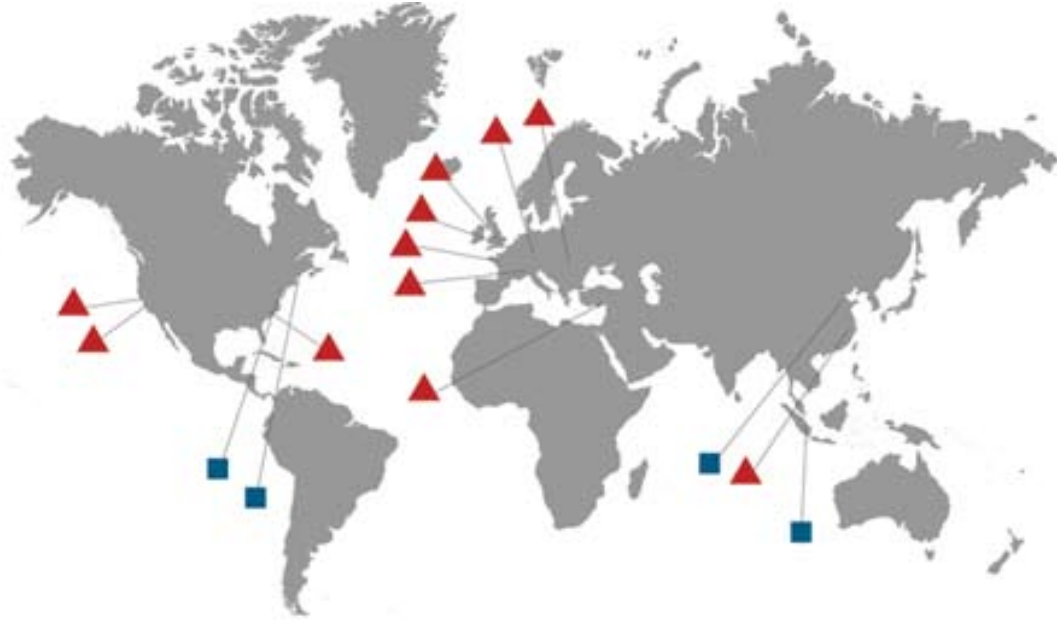
Optima can match your design specifications within a large range of innovative, intelligent enclosure technology.



**Optima EPS**  
Cabinets & Enclosures  
An ELMA Company



# LOCATIONS



 Elma Sales Office

 Elma Production/Assembly/Sales

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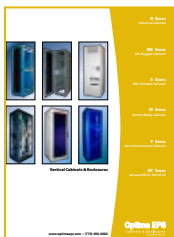
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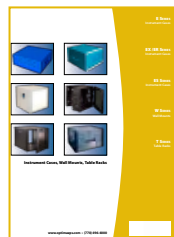
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VERTICAL CABINETS & ENCLOSURES



DESKS / CONSOLES



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