S Series - EMC Shielded Cabinets

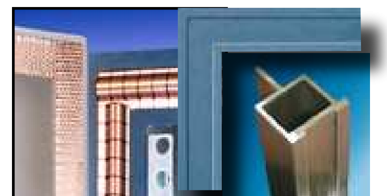
Optima EPS
Cabinets & Enclosures
An ELMA Company

Overview:

For sensitive applications requiring EMC protection, Optima offers the SA and SC series of modular cabinets. Nearly identical in both frame construction and appearance to the RA and RC series, the SA and SC provide a FCC shielded alternative for Test Instrumentation, Industrial Controls & Electronic applications. Utilizing a field proven extrusion based frame design the S series has the flexibility to provide custom configurations from standard options. With a choice of bezel styles and a wide range of options for; frame size, mounting rails, base, top panel, bottom panel, side panel, doors, color and accessories the cabinet can be built with the features and appearance desired.

SC Series Frame (Bezel) Design

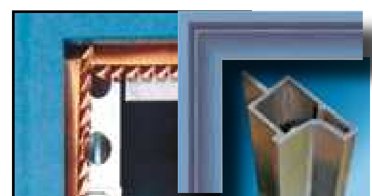
This extra-rugged classic is in world-wide use. The aluminum construction features "shadow-box" shaped tubular bezels, connected with very rigid corner members. Doors fit nearly flush, neatly within the bezel frame, hence the "shadow box" look.



SC Bezel Gasketing

SA Series Frame (Bezel) Design

Structurally, this series is identical to the SC series, but with a different frame appearance. The aluminum tubular bezels are flush with front panel surfaces, and feature a wide recessed channel. Doors are surface mounted to extend beyond the bezel frame.



SA Bezel Gasketing

Advantages:

- **Superior Shielding effectiveness: FCC Part 15, Subpart J (class A & B).**
- **Attractive, professional bezel designs: "shadow box" (SA) or "flush"(SC).**
- **Modular design reduces installation, upgrade and service time.**
- **Wide range of industry standard sizes and options.**
- **Selection of contemporary color choices. (custom color matching also available)**
- **Superior strength-to-weight ration.**
- **Proven paint adhesion provides durable aesthetics.**
- **Free assembly. Optima expertly, assembles your cabinet at no charge.**

Description

Optima's S Series of industrial cabinets meet or exceed FCC class A and B requirements for equipment protection. Utilizing an extrusion based frame system, integrated with BeCu gaskets and shielded ventilation the cabinets maintain a professional appearance while delivering superior EMC performance. Designed to perform in the most demanding applications, the bezels are rated to 6600lb static load and corrosion resistance is achieved via durable acrylic coating based on thermo setting, cross linking resins. A wide selection of doors, side panels, top and bottom covers combined with a family of accessory items complete the range.

Features:

- Modular extruded, aluminum frame (6063-T5 AL)
- 46dB shielding effectiveness (30MHz to 1,000 MHz)
- BeCu gasketing applied to all seams and joints (Spring and Sawtooth) to insure Paint-free electrical contact areas with optional clear chromate
- Shielded mess ventilation (honeycomb optional)
- Shielded accessories to include: panels, drawers and writing surfaces
- Solid billeted aluminum corners (four way crimped)
- Bezel tested to 6,600lbs static load (2,000lb rated)
- Standard Sizes
  - Widths: 19", 23" and 24"
  - Heights: 12U, 16U, 20U, 24U, 30U, 35U, 40U, 44U (customs available)
  - Depths: 24", 30", 36", 42"
- Independent, removable side, top panel, bottom panel and doors
- Integrated cable management, power conditioning and cooling options
- Wide range of std. body and trim color options

Scope of Supply:

- Basic cabinet to include: 1 x frame, 2 x mounting rails (pairs, with 10A clip nuts and panel screws), 1 x base, 1 x top panel, gasketing kit , painted and assembled.

1 2 – 3 4 5 6 7 8 9 10 11 12 13 14 15 – 16

1,2 Frame Style
- **SA** > SA Series
- **SC** > SC Series
- **ZZ** > Custom

3,4 Frame Height
- **21** > 12U (21.12" / 536mm)
- **28** > 16U (28.12" / 714mm)
- **35** > 20U (35.12" / 892mm)
- **42** > 24U (42.12" / 1069mm)
- **52** > 30U (52.12" / 1336mm)
- **61** > 35U (61.38" / 1559mm)
- **70** > 40U (70.12" / 1781mm)
- **77** > 44U (77.12" / 1958mm)
- **ZZ** > Custom

5,6 Frame Width
- **19** > 19" (17.81" / 452.4mm)
- **23** > 23" (21.81" / 554.0mm)
- **24** > 24" (22.81" / 579.4mm)
- **ZZ** > Custom

7,8 Frame Depth
- **24** > 24" (609.6mm)
- **30** > 30" (762.0mm)
- **36** > 36" (914.4mm)
- **42** > 42" (1066.8mm)
- **ZZ** > Custom

9 Mounting Rail Position
- **S** > Standard
- **F** > Recessed Front
- **R** > Recessed Rear
- **B** > Recessed Front & Rear
- **X** > Not installed
- **Z** > Custom

10,11 Mounting Rails
- **SR** > U shape – 14GA, std. (SR)
- **UT** > U shape – 11GA, tapped (UTR)
- **PR** > L shape – 11GA, punched (PR)
- **TR** > L shape – 11GA, tapped (TR)
- **TI** > Telco – 40U & 44U (TIR)
- **RE** > Reducer rail (RED)
- **SQ** > Server rail (SQ)
- **XX** > Not installed
- **ZZ** > Custom

12,13 Base
- **BS** > Standard (BS)
- **BC** > Standard w/casters
- **BL** > Standard w/levelers
- **CL** > Standard w/both C&L
- **CE** > Cable egress (CE)
- **EL** > Cable egress w/levelers
- **EC** > Cable egress w/casters
- **EB** > Cable egress w/both C&L
- **PC** > Caster Plate w/castors
- **SS** > Standard w/stabilizer
- **XB** > Not installed (XB)
- **ZZ** > Custom

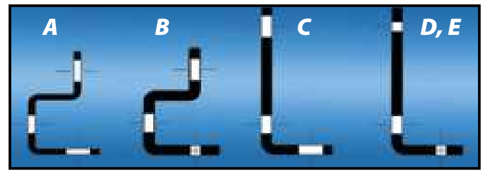
14,15 Top Panel
- **TS** > Solid (TS)
- **PT** > Perforated (PT)
- **PG** > Pagoda (PG)
- **CE** > Cable egress
- **TF** > Fan (TF)
- **XT** > Not installed (XT)
- **ZZ** > Custom

16 Body Color
- **1** > Black (207
- **2** > Sky Blue (210)
- **3** > White (931)
- **4** > Deep Charcoal (209)
- **5** > Light Gray (201)
- **6** > Beige (205)
- **Z** > Custom

Items to be ordered separately: bottom panel, side panels, doors, and accessories (denote "installed" and location for free integration to cabinet assembly). For a single, fully configured and assembled cabinet part number see page 6 or consult factory.

Mounting Rail Options - *for more detailed description /configuator see page 37*

- > A) **Standard (SR)** *14 gauge (.075" THK.) CRS*
- > B) **Heavy-duty Tapped (UTR)** *11 gauge (.119" THK.) CRS*
- > C) **Heavy-duty Punched (PR)** *11 gauge (.119" THK.) CRS*
- > D) **Heavy-duty Punched (TR)** *11 gauge (.119" THK.) CRS*
- > E) **Telecom Industry (TI)** *11 gauge (.119" THK.) CRS*



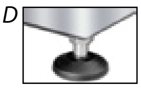
Base Options - *for more detailed description /configuator see page 37*

- > A) Solid
- > B) Cable Egress
- > C) Casters
- > D) Levelers
- > E) Caster Plate

A

B

C

D

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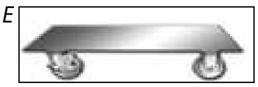
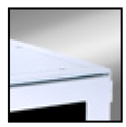


Top Panel Options - *for more detailed description /configuator see page 35*

- > 1) Solid Top (ST)
- > 2) Perforated Top (PT)
- > 3) Pagoda (PG)
- > 4) Fan Cut-Out (TF)
- > 5) Solid Quick-release Top (SQ) - *CUSTOM*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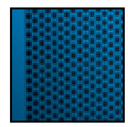
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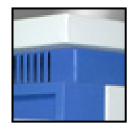
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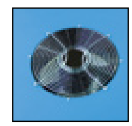
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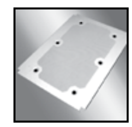
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Bottom Panel Options - *for more detailed description /configuator see page 37*

1 2 – 3 4 5 6 7 8 – 9

1,2 Bottom Panel Type
- SO > Shielded (SA / SC)
- ZZ > Custom

3,4 Venting
- PS > Solid
- PP > Perforated
- ZZ > Custom

5,6 Width
- 19 > 19" (17.81"/ 452.4mm)
- 23 > 23" (21.81" / 554.0mm)
- 24 > 24" (22.81" / 579.4mm)

7,8 Depth
- 24 > 24" (609.6mm)
- 30 > 30" (762.0mm)
- 36 > 36" (914.4mm)
- 42 >42" (1066.8mm)

9 Color
- 1 > Black (207)
- 2 > Sky Blue (210)
- 3 > White (931)
- 4 > Deep Charcoal (209)
- 5 > Light Gray (201)
- 6 > Beige (205)
- Z > Custom

Side Panel - *for more detailed description /configuator see page 34*

1 2 – 3 4 5 6 7 8 – 9

1,2 Side Panel Type
- SO > Shielded (SA / SC Frame)
- ZZ > Custom

3,4 Style
- SF > Fixed
- QD > Quick Disconnet

5,6 Height
- 21 > 12U (21.12" / 536mm)
- 28 > 16U (28.12" / 714mm)
- 35 > 20U (35.12" / 892mm)
- 42 > 24U (42.12" / 1069mm)
- 52 > 30U (52.12" / 1336mm)
- 61 > 35U (61.38" / 1559mm)
- 70 > 40U (70.12" / 1781mm)
- 77 > 44U (77.12" / 1958mm)
- ZZ > Custom

7,8 Depth
- 24 > 24" (609.6mm)
- 30 > 30" (762.0mm)
- 36 > 36" (914.4mm)
- 42 >42" (1066.8mm)
- ZZ > Custom

9 Color
- 1 > Black (207)
- 2 > Sky Blue (210)
- 3 > White (931)
- 4 > Deep Charcoal (209)
- 5 > Light Gray (201)
- 6 > Beige (205)
- Z > Custom

Door Options - *for more detailed description /configuator see page 32*

SA frame configured to mount front and rear doors. Consult factory for no door or single door option.

1 2 – 3 4 5 6 – 7 8 – 9 10 – 11

1,2 Door Type
- AS > Shielded, SA Series (SDAS or SDAP)
- CS > Shielded, SC Series (SDAS or SDAP)
- AH > Honeycomb SA Series (SDAH)
- CH > Honeycomb SC Series (SDCH)
- AB > HC, Blower SA Series (SDAB)
- CB > HC, Blower SC Series (SDCB)
- ZZ > Custom

3,4 Height
- 21 > 12U (21.12" / 536mm)
- 28 > 16U (28.12" / 714mm)
- 35 > 20U (35.12" / 892mm)
- 42 > 24U (42.12" / 1069mm)
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5,6 Width
- 19 > 19" (17.81"/ 452.4mm)
- 23 > 23" (21.81" / 554.0mm)
- 24 > 24" (22.81" / 579.4mm)
- ZZ > Custom

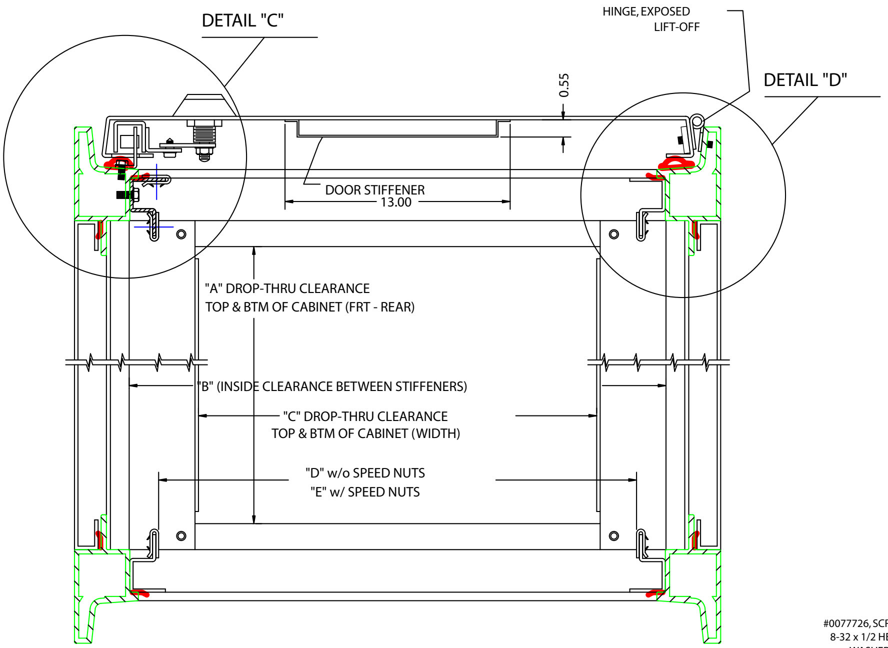
7,8 Ventilation
- XX > Solid
- TV > Vented Top
- BV > Vented Bottom
- FV > Vented Top & Bottom
- PV > Perforated Insert

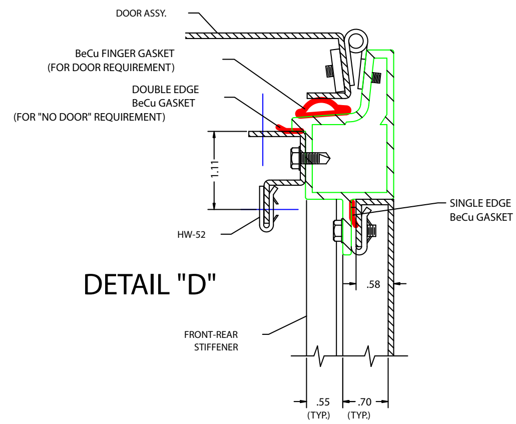
9,10 Opening Side
- LH > Left Hinged
- RH > Right Hinged

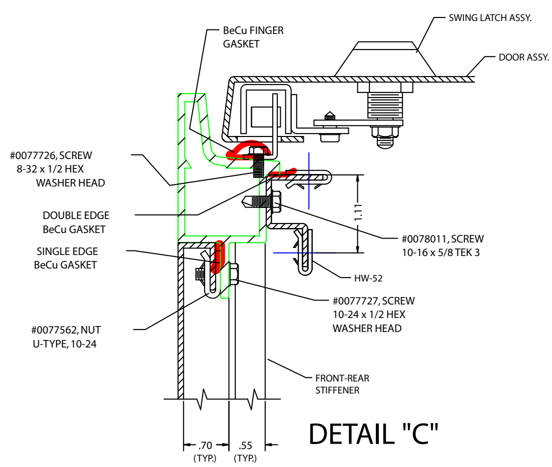
11 Color
- 1 > Black (207)
- 2 > Sky Blue (210)
- 3 > White (931)
- 4 > Deep Charcoal (209)
- 5 > Light Gray (201)
- 6 > Beige (205)
- Z > Custom

For additional acessories and/or options , refer to pages 38 thru 49

Shielding Overview





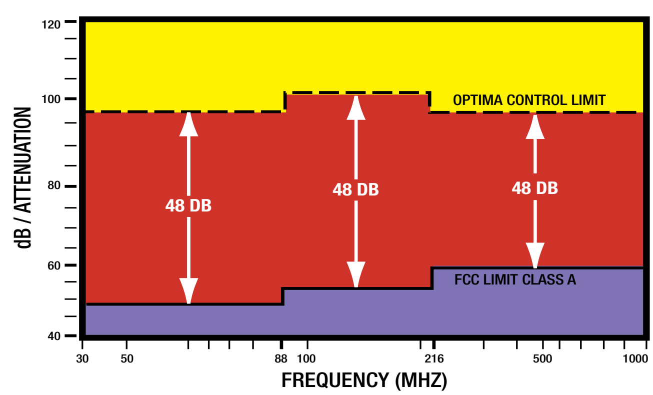


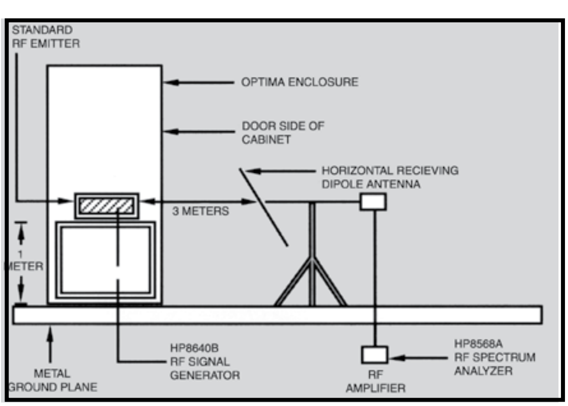
TABULATION	
CABINET DEPTH	DIM "A"
SC-24	20.36
SC-30	26.36
SC-36	32.36

TABULATION				
CABINET WIDTH	DIM "B"	DIM "C"	DIM "D"	DIM "E"
SC-19	19.46	16.06	18.26	18.20
SC-24	24.46	21.06	23.26	23.20

Superior Shielding Effectiveness

The numbers tell the story. When an FCC recognized independent lab tested Optima Vertical Cabinets, the results showed a nominal 46dB shielding effectiveness throughout the 30 to l,000 MHz frequency range. Attenuation values at varied frequencies ranged up to 67 dB. This meets and exceeds the shielding standards set forth in FCC Docket #20780, Part 15, Subpart J. Design features like the examples shown here and Optima's experience in building quality enclosures for over thirty years are good reasons for this superiority.





Test Method Highlights

Shielding effectiveness was calculated by subtracting RF levels measured with an RF emitter inside the cabinet from the RF levels recorded with emitter in the open field. RF signals from emitter were measured and recorded at various levels utilizing a calibrated dipole receiving antenna and a Hewlett-Packard Spectrum Analyzer. A copy of the complete Product Qualification Approval Report (#63082) is available upon request.

E.M.I. Cabinet Attenuation

Independent Lab Tested Results