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

OVERVIEW:

When dust or moisture ingress is a problem, then Optima's F series cabinet is the solution. The standard range of product comes available in three versions: non-gasketed, NEMA 12/UL 508 and Shielded EMC/NEMA, depending on the demands of the application environment. With tested compliance to agency certification standards the F series is proven to perform in harsh environments such as industrial control, factory automation, and lab use. A wide range of standard options, colors and accessories ensures that Optima can configure a cabinet to customer specific requirements.

F5 FRAME GASKET, SHIELDED EMC / NEMA

- Gasket Material: Two layers of double-knit, tin-plated, copper-clad, steel mesh mounted to NEMA 12/UL 508 gasket.
- Dynamic mechanical properties yield a high deflection range and eliminate compression set
- Excellent electrical conductivity
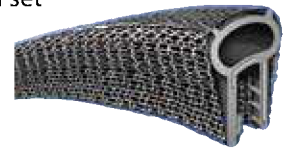
F6 FRAME GASKET, NEMA 12 / UL508

- Material: EPDM (Ethylene-Propylene-Diene)
- Resistant to: UV, Ozone, weathering, seawater, compression set and abrasion
- Temperature Range: -40 to 120 Deg C.
- Successfully tested to UL 508
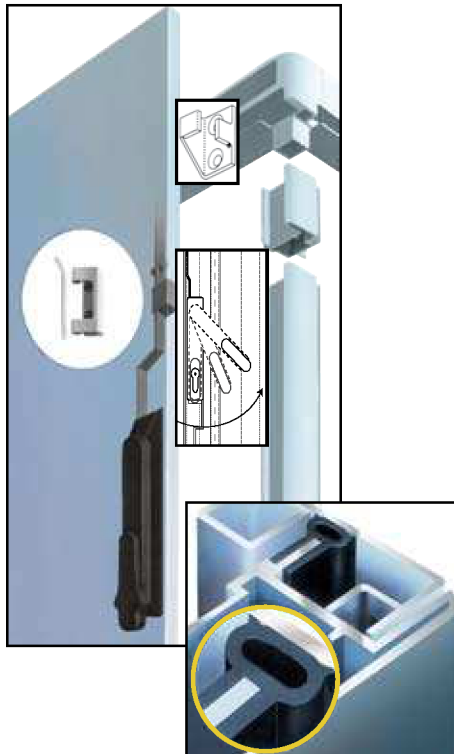
ADVANTAGES:

- Harsh environment protection: NEMA 12/UL508, EMC FCC Class A
- Three levels of protection: Model F4 (No-gasket), Model F5 (NEMA), Model F6 (EMC/NEMA)
- 51dB shielding effectiveness, 30 to 1,000MHz
- Wide range of industry standard sizes and options.
- Tested performance to: UL, CSA, FCC, MIL-STD, and CISPR
- Modular design reduces installation, upgrade and service time.
- Wide range of industry standard sizes and options.
- Custom design options with a standard platform and cost
- Selection of contemporary color choices. (custom color matching also available)
- Free assembly. Optima expertly, assembles your cabinet at no charge.

DESCRIPTION

The F series is based on a modular extrusion frame designs and is available in 3 versions to meet the demands of the application. The model F4 is a basic cabinet without gasketing. For application that require only dust and moisture control the model F5 is the appropriate choice. When the environment calls for both particle and EMC suppression the F6 must be used. All versions feature an aluminum frame with integrated gasketing, corner castings, heavy duty door stiffening frame, multi-point locking system, windstops, and key locking door. With the choice of frame size, mounting rails, base, top panel, bottom panel, side panel, steel or glazed class doors, color and accessories the cabinet can be built with the features and appearance desired.

FEATURES:

- Modular extruded, aluminum frame (6063-T5 AL)
- Corner die casting (380 AL)
- NEMA 12 gasket: EPDM (Ethylene-Propylene-Diene)
- EMC gasket overlay: Two layers of double-knit, tin-plated, copper-clad, steel mesh
- Multi-point locking system (2 x 21"-42", 4 x 52"-77")
- Standard Sizes (custom available on request)
  - o   Widths: 19", 23" and 24"
  - o   Heights: 12U, 16U, 20U, 24U, 30U, 35U, 40U, 44U
  - o   Depths: 24", 30", 36",
- Independent, removable side, top panel, bottom panel and doors
- Concealed hinges with 112 deg swing (external 210 deg hinge optional)
- Key lock door standard
- Flammability rating: UL94
- Integrated cable management, power conditioning and cooling 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

F4	> F4 Series (standard)
F5	> F5 Series (EMC shielded)
F6	> F6 Series (NEMA 12)
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)
EU	> IEC 60297-2, 12 gauge
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 (CE)
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.

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MOUNTING RAIL OPTIONS – *for more detailed description /configuator see page 39*

- **A)** **Standard (SR)** *14 gauge (.075" THK.) CRS*
- **B)** **Heavy-duty Tapped 10-32 (UT)** *11 gauge (.119" THK.) CRS*
- **C)** **Heavy-duty Punched (PR)** *11 gauge (.119" THK.) CRS*
- **D)** **Heavy-duty Tapped 10-32 (TR)** *11 gauge (.119" THK.) CRS*
- **E)** **Telecom Industry (TI)** *11 gauge (.119" THK.) CRS*
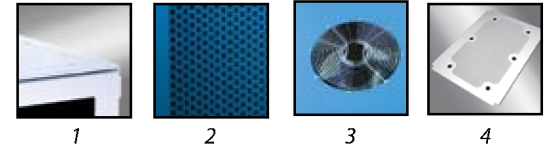- **F)** **IEC 60297-2 (Square hole)** *12/14 gauge (details page 38)*

A   B   C   D, E
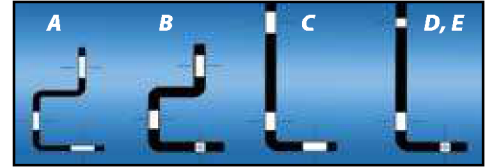
BASE OPTIONS – *for more detailed description /configuator see page 38*

- **A)** Solid
- **B)** Cable Egress
- **C)** Casters
- **D)** Levelers

A   B
C   D
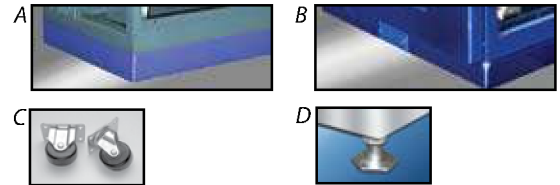
TOP PANEL OPTIONS – *for more detailed description /configuator see page 37*

- **1)** Solid Top (TS)
- **2)** Perforated Top (PT)
- **3)** Fan Cut-Out (TF)
- **4)** Solid Quick-release Top (SQ)* - CUSTOM*

1   2   3   4

BOTTOM PANEL OPTIONS – *for more detailed description /configuator see page 38*

`1  2  3  4 – 5  6  7  8 – 9`

1,2 BOTTOM PANEL TYPE	3,4 VENTING	5,6 WIDTH	7,8 DEPTH	9 COLOR
F4 > No NEMA Gasket	**PS** > Solid	**19** > 19" (17.81"/ 452.4mm)	**24** > 24" (609.6mm)	**1** > Black (207)
F5 > NEMA	**PP** > Perforated	**23** > 23" (21.81"/ 554.0mm)	**30** > 30" (762.0mm)	**2** > Sky Blue (210)
F6 > NEMA/EMC	**CE** > Cable Egress	**24** > 24" (22.81"/ 579.4mm)	**36** > 36" (914.4mm)	**3** > White (931)
ZZ > Custom	**ZZ** > Custom		**42** >42" (1066.8mm)	**4** > Deep Charcoal (209)
				5 > Light Gray (201)
				6 > Beige (205)
				Z > Custom

SIDE PANEL – *for more detailed description /configuator see page 37*

`1  2  3  4 – 5  6  7  8 – 9`

1,2 SIDE PANEL TYPE	3,4 STYLE	5,6 HEIGHT	7,8 DEPTH	9 COLOR
F4 > F4 Series (standard)	**SF** > Fixed	**21** > 12U (21.12"/ 536mm)	**24** > 24" (609.6mm)	**1** > Black (207)
F5 > F5 Series (EMC shielded)	**QD** > Quick Disconnet	**28** > 16U (28.12"/ 714mm)	**30** > 30" (762.0mm)	**2** > Sky Blue (210)
F6 > F6 Series (NEMA 12)		**35** > 20U (35.12"/ 892mm)	**36** > 36" (914.4mm)	**3** > White (931)
ZZ > Custom		**42** > 24U (42.12"/ 1069mm)	**42** >42" (1066.8mm)	**4** > Deep Charcoal (209)
		52 > 30U (52.12"/ 1336mm)	**ZZ** > Custom	**5** > Light Gray (201)
		61 > 35U (61.38"/ 1559mm)		**6** > Beige (205)
		70 > 40U (70.12"/ 1781mm)		**Z** > Custom
		77 > 44U (77.12"/ 1958mm)		
		ZZ > Custom		

DOOR OPTIONS – *for more detailed description /configuator see page 35*

`1  2 – 3  4  5  6 – 7  8 – 9  10 – 11`

1,2 DOOR TYPE	3,4 HEIGHT	5,6 WIDTH	7,8 HINGE SIDE	9,10 VENTILATION	11 COLOR
F4 > No gasket	**21** >12U (21.12"/ 536mm)	**19** > 19" (17.81"/ 452.4mm)	**LH** > Left Hinged	**XX** > Solid	**1** > Black (207)
F5 > Nema	**28** > 16U (28.12"/ 714mm)	**23** > 23" (21.81"/ 554.0mm)	**RH** > Right Hinged	**TV** > Vented Top	**2** > Sky Blue (210)
F6 > EMC, shielded	**35** > 20U (35.12"/ 892mm)	**24** > 24" (22.81"/ 579.4mm)		**BV** > Vented Bottom	**3** > White (931)
FB > Glazed, Nema	**42** > 24U (42.12"/ 1069mm)	**ZZ** > Custom		**FV** > Vented Top & Bottom	**4** > Deep Charcoal (209)
FC > Glazed EMC	**52** > 30U (52.12"/ 1336mm)			**PV** > Perforated Insert	**5** > Light Gray (201)
ZZ > Custom	**61** >35U (61.38"/ 1559mm)				**6** > Beige (205)
	70 > 40U (70.12"/ 1781mm)				**Z** > Custom
	77 > 44U (77.12"/ 1958mm)				
	ZZ > Custom				

For additional accessories and/or options, refer to pages 40 thru 52

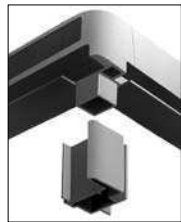**www.optimaeps.com • (770) 496-4000**

EMI/RFI Version

- Plenum spot-welded to door
- 16 Ga.CRS, perforated
- .187" diameter holes on 45° staggered centers

NEMA 12/UL 508 Version

- Air filters are removable and washable in detergent
- Filter material: polyester urethane; UL 94-HF1 rated
- 1/2" thick core; 30 pores per inch
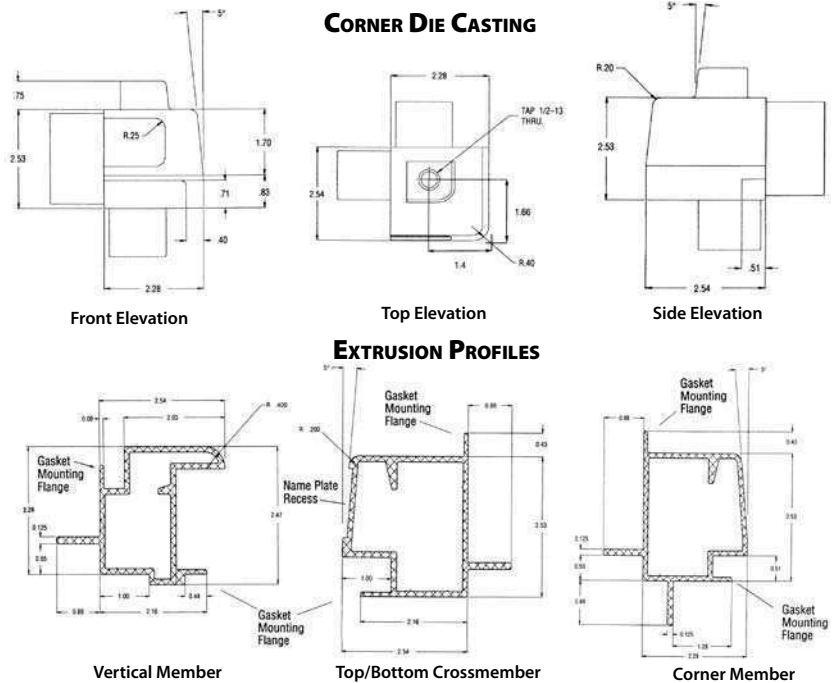- Frame material: 18 ga. CRS
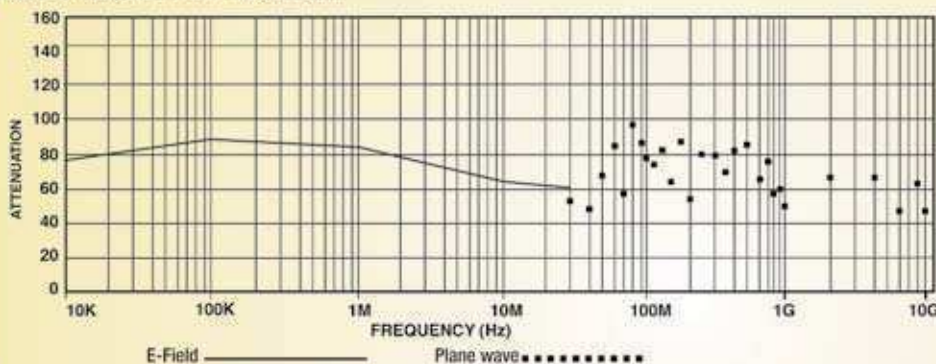

Material Specification

Corner Die Casting

- Aluminum 380 Alloy

Extrusions

- Aluminum 6063-T5 Alloy

Corner Die Casting

Front Elevation

Top Elevation

Side Elevation

Extrusion Profiles

Vertical Member

Top/Bottom Crossmember

Corner Member

E.M.I. Cabinet Attenuation

- Safety
  - UL 478
  - CSA C22.2 (No. 220-M1986)
  - CSA C22.2 (No. 0.7-M1984)
  - IEC 950
- Environmental
  - UL 508 Type 12
- EMI/RFI
  - FCC Class A, Docket No. 20780 Part 15 Subpart J
  - MIL-STD-285
  - VDE 0871 Class B
  - CISPR Publication 22
- Telecom
  - UL 1459

Design Note:
Paragraph 6.11 of UL 50, the Standard for Enclosures for Electrical Equipment, states that a Type 12 enclosure shall have no unsealed openings. A sample of the Optima Form4 test enclosure, with ventilation openings located on the top, bottom and door of the enclosure was subjected to a spray of atomized water, by UL. The ventilation openings are covered with Model No. 900-04, 30 PPI filters. The nozzle was held 12–15 inches from the enclosure and the spray of water was directed at all areas of potential dust entry. The enclosure had no water inside. These results were considered acceptable by UL.

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