ZERO KNOWS... SOLUTIONS!

In practice, ZERO Manufacturing produces metal and plastic cases, containers and enclosures. But in truth, our products are protection solutions—ensuring the safe transport and viability of valuable equipment and electronics, without compromise.

Whether we meet your needs with one of our nearly 3,000 standard products, or with the infinite possibilities through a specialized custom design, ZERO has the engineering expertise and manufacturing experience to provide the perfect solution for your protection needs.

Please review the Carrying Case product data for specifications and information about how ZERO provides protection solutions for your industry.

Quality Commitment

ZERO MANUFACTURING is committed to providing products and services that meet and exceed our customers’ expectations. To that end, we have been ISO 9001 certified since 1994, are an SPC Certified Supplier and boast nearly a dozen Military Certifications. We have also received numerous awards and certifications from hundreds of customers and industries, both domestically and internationally.
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THE ZERO PROCESS  Quality is the core philosophy guiding every step of our manufacturing process. From the initial product planning and engineering, through our certified inspection system, to the final performance of our products in the field, our time tested durability and unparalleled protection are the reasons we lead the industry in case fabrication and in metal and plastic enclosures.

We manufacture the most durable and innovative metal and plastic protective cases in the market. Our cases and enclosures are built to individual specifications, so you decide what you want and we build to suit your needs. ZERO’s customized aluminum products provide ultimate protection with thousands of standard options and design capabilities from which to choose.

BENEFITS OF ALUMINUM INSTRUMENT AND CARRYING CASES

HIGH STRENGTH-TO-WEIGHT RATIO
- Lightweight aluminum alloys used in ZERO cases are known for excellent strength in protecting equipment from damage.

EXTRAORDINARY RESISTANCE TO CORROSION
- Aluminum is highly resistant to nearly all substances that cause corrosion and weathering.

ENDURANCE AGAINST STRESS
- Including tears and cracks—Aluminum offers better fracture toughness than other materials, including resistance to both mechanical breakage and propagation of fractures.

SUSTAINING COLD TEMPERATURES
- Instead of becoming more fragile and brittle in cold weather, the tensile strength of ZERO aluminum cases increases with cold, without loss of ductility.

RFI/EMI SHIELDING AND ESD/GROUNDING
- Aluminum has the highest electrical conductivity-to-weight ratio of any metal, making ZERO cases excellent for RFI/EMI shielding and for ESD/grounding systems.
- Aluminum is an efficient reflector for externally generated interference, including the electromagnetic wavelengths of radio and radar.

HEAT DISSIPATION AND SHIELDING
- Aluminum is widely used in “heat sinks” and heat exchangers because of its high thermal conductivity. Used in an enclosure aluminum efficiently transports heat away from electronics and equipment.
- Has high reflectance to encroaching radiated heat, such as sunlight.
- The low coefficient of Aluminum’s thermal expansion allows it to sustain higher temperatures without distortion.

SPECIAL ENVIRONMENTS
- Aluminum is non-toxic, odorless, tasteless, non-absorbing, non-sparking, non-magnetic and resistant to fire.
- Aluminum cases can be used in a wide variety of special environments, including sanitary or clean rooms, food service areas and certain volatile environments.
- Aluminum provides excellent protective capabilities in environments requiring watertight, splash proof, drip proof and salt exposure specifications.

ADDITIONAL CUSTOMIZATION
- ZERO’s aluminum products can be customized and modified without the cost of special molds.
- Drilling, laser cutting, riveting, welding, brazing, soldering, etc.
- ZERO can accommodate virtually every kind of finish, whether mechanical (such as brushing or polishing), chemical (anodizing) or an unlimited variety of finishes (paint and powder coatings).
TOP OF THE LINE PROTECTION AND APPEARANCE FOR YOUR FINEST EQUIPMENT

KEY: • Indicates feature and/or option is available, but not necessarily standard. As case configuration and options may vary from customer to customer, please consult this catalog or ZERO for more specific details.

NOTE: For a complete list of plastic cases, containers, enclosures and solutions, request ZERO catalogs and/or data sheets, or visit www.zerocases.com for more information.

Please visit www.zerocases.com to view ZERO Manufacturing’s complete product line and catalogs.

STANDARD CASE SELECTION GUIDE

<table>
<thead>
<tr>
<th>PERFORMANCE</th>
<th>CENTURION MIL-Spec*</th>
<th>CENTURION ELITE</th>
<th>CENTURION VALULINE</th>
<th>STYLE-LITE</th>
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<tr>
<td>Lightweight</td>
<td>•</td>
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<td>Watertight</td>
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<tr>
<td>Splash Proof</td>
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<tr>
<td>Drip Proof</td>
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<tr>
<td>Salt Exposure</td>
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<td>•</td>
</tr>
<tr>
<td>Dust Proof</td>
<td>•</td>
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<tr>
<td>RFI/EMI Shielded</td>
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<tr>
<td>FCC Shielding Requirements</td>
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<tr>
<td>Sustain Cold Temperatures</td>
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<tr>
<td>Heat Dissipation</td>
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<td>•</td>
</tr>
<tr>
<td>MIL-STD-108</td>
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OPTION EXAMPLES—ZERO has an extensive selection of options and accessories.

<table>
<thead>
<tr>
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<th>CENTURION MIL-Spec*</th>
<th>CENTURION ELITE</th>
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<tr>
<td>Inner Panel</td>
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<tr>
<td>Panel Brackets</td>
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</tr>
<tr>
<td>Separable Hinges</td>
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<td>•</td>
</tr>
<tr>
<td>Casters or Rollers</td>
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</table>

CUSTOMIZATION—ZERO offers a wide selection of finishes, cushioning and more.

<table>
<thead>
<tr>
<th></th>
<th>CENTURION MIL-Spec*</th>
<th>CENTURION ELITE</th>
<th>CENTURION VALULINE</th>
<th>STYLE-LITE</th>
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<tr>
<td>Secondary Operations</td>
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</tr>
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<td>Fast Turnaround Modifications</td>
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<tr>
<td>Protection From Drip, Salt, Splash</td>
<td>•</td>
<td>•</td>
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</tr>
</tbody>
</table>

MILITARY SPECIFICATIONS

ZERO’s processes and products are in accordance with current national and international standards. Successful development and testing includes the following military specifications:

- MIL-I-45208A
- MIL-PRF-28800
- SAE-AMS-STD-1595A
- SAE-AMS-2770
- SAE-AMS-W-6858
- MIL-STD-171D
- MIL-DTL-53072
- MIL-STD-108
- MIL-STD-810
- MIL-STD-130
- SAE-AMS-STD-2219 (Class A and B)
- MIL-STD-45662
- MIL-DTL-14072
- MIL-DTL-5541
- MIL-A-8625

ISO 9001:2008 AS9100, REV C

ZERO is a certified company, and SPC certified supplier to major and key customers.

NEED A QUOTE? Have any questions? Want to learn more? Contact ZERO.

800.500.9376
ZERO MANUFACTURING is the leader in the manufacture of quality, deep drawn and fabricated cases and enclosures. Offering over 5,800 pre-tooled sizes of deep drawn enclosures that enable us to build over 32,000 different sizes of deep drawn enclosures, and virtually unlimited sizes and configurations, ZERO is the source for secondary operations and customization, whether commercial or military specification.

DEEP DRAW
- Presses: Eleven (11) Presses
- Capacity Range: Up to a 440 ton fully CNC controlled press with quick die change capability
- Maximum Bed Size: 60” x 98”
- Maximum Drawn Depth: 18”
- Sizes: In addition to being able to build over 32,000 different sizes of deep drawn enclosures, we can create tooling customized to meet your specific requirements.
- Shears: Blanks are cut on automatic coil shears or conventional 12 foot shears using the waterjet for sheet stock.
- Certified to meet MIL-H-6088 and customer specifications AMS-2770.

SHEET METAL FABRICATION
- Press Brakes: Five press brakes up to 130 tons, equipped with back gauging
- Metal Fabricator: Two turret fabricators with 58 stations
- Punch Presses: Fifty-four mechanical punch presses up to 350 ton capacity, including a CNC Tru-Punch metal fabricator
- Extrusion Forming: Three heavy-duty and two light-duty benders for forming extrusions
- Degrease and Washer System: Automatic titrating conveyor system 6’w x 3’h maximum product size.
- Two (2) Tumbler Deburr Machines:
- 39 cu.ft Tumbler Deburr System – Capable of tumbling parts 16” corner to corner
- 10 cu.ft Tumbler Deburr System – Capable of Tumbling parts 4” corner to corner
- Shears: Three shears, 12 feet wide, with 10 gauge capacity and digital back gauging
- Fadal VMC 4th Axis Vertical Milling Machine
- Washer System: Automatic titrating conveyor system 6’ x 90’
- Etch: Weld prep and cleaning
- Chemical Film: Certified to meet MIL-C-5541, Classes 1A and 3
- Powder King High Intensity Blender
- Hammond-Roto-Finish 39 cubic ft Vibratory Tumbler (2)

LASER CUTTING
- Five-Axis Laser: Computer controlled five-axis laser provides flexibility, speed and efficiency to design and manufacturing capabilities, and the ability to custom cut and fabricate aluminum or other metals Bypassing the entire tooling process eliminates costly setup and tooling fees It’s ideal for creating prototypes and for shorter runs
- Specifications: Working Range
  - X, Y, Z, C, B:
    - X = 158, 118, 80, 50”
    - Y = 60”
    - C = 360° Endless
    - B ± 120°
  - Speed X, Y, Z, C, B:
    - X, Y = 2000 IPM
    - Z = 1200 IPM
    - C, B = 360°/sec
  - Smallest Programmable Increment: 0.0039”
  - Position Accuracy: 00039”
  - Repeatability: Ps 00012”
  - Working Height: 28”
- Anodizing to MIL-A-8625 Type III Class 2 Color and Clear Anodize coatings
- Standard and Custom colors available
- Max Envelope is 7’ x 2’ x 6’

PROCESSES
- Washer System: Automatic titrating conveyor system 6’ x 90’
- Etch: Weld prep and cleaning
- Chemical Film: Certified to meet MIL-C-5541, Classes 1A and 3
- Powder King High Intensity Blender
- Hammond-Roto-Finish 39 cubic ft Vibratory Tumbler (2)

WATERJET
- 3 Axis Water Jet – 60000 psi, 6’ x 13’ x 8” Cutting Window

ENVIRONMENTAL TESTING
- Three test tanks to test for watertight integrity per MIL-STD-108
- Testing Lab: Drop, G-force and Load capacity
- Three test tanks to test for watertight integrity per MIL-STD-108.
- Tank opening: 5.5’ x 2.5’ x 5’
OUR CAPABILITIES

WELDING
- Welding performed IAW MIL-STD-2219 Class B & C (Class A by contract only) and certified to MIL-STD-1595.
- Resistance: Twelve 3-phase spot welders with Class A solid state controls rated up to 250 KVA. This permits spot welding aluminum up to 5/16” thick. Certified to MIL-W-6858D.
- Fusion: Eight 300 amp GTAW stations, 2 GMA welders, and longitudinal and peripheral seam welders.

ASSEMBLY
- Equipment: A wide range of electrical and pneumatic hopper fed riveters and versatile presses for threaded insert and stud installation. Conventional pedestal and hand held riveters are also used as well.

PAINTING
The ZERO paint system was custom designed to accommodate all enclosure products and types of paint. The primary system is completely enclosed and supplied with a 100,000 cfm filtered, climate controlled air make-up system.
- Layout: A 540 foot overhead conveyor runs through five alternatively opposed filter booths and a 60 foot long paint drying oven. Oven is also equipped with a six foot wide lower conveyor to handle large and/or heavy objects.
- Additional: Two off-line booths, and a third booth with two batch drying ovens for short runs. Liquid and powder painting and drying on separate lines.
- Custom colors and finishes including PMS, RAL, and Fed-Std-595; silkscreen, markings, embossing, debossing, and more.
- Aluminum anodizing
- Chemical (Chem-Film) conversion coating
- Certification: Capable of painting to all specifications meeting safe environmental conditions. Enamel, water-base, and powder paints available and others as specified.

TOOL DEPARTMENT
ZERO Manufacturing, Inc. has a 9,600 square foot tool and die, and production machine shop with over 40 pieces of primary equipment. A foundry for casting sleeves for multiple draw jobs is also in-house. Production machining is performed on two CNC milling machines. Quality control is monitored by a coordinate measuring machine and a profile projector.

STANDARDS
- ISO 9001 certified since 1994 and currently has ISO 9001:2008/9100 Rev C; water treatment facility, material and product testing lab, and analytical testing lab.
- SPC certified supplier, RoHS compliant, 5S Process, Drum-Buffer-Rope production planning and control, and a green manufacturer.

ENGINEERING DEPARTMENT
- Manufacturing engineering is performed on the latest computer network system.
- Thirteen CAD-based design stations running Solidworks and Key Creator, Standard File Formats Including; ACIS, CKD, DXF, DWG, IGS, JPG, PDF, Parasolid, SAT, STEP, STL and TIF. Custom design capabilities to meet military or unique commercial specifications. Stress analysis can be performed on Solidworks upon request.

INSPECTION CAPABILITIES
- Key Equipment includes:
  - Mitutoyo Model 9106 Coordinate Measuring Machine
  - Helmel Check Master Coordinate Measuring Machine
  - Olympus Magna Mike Ultrasonic Thickness Gage
  - Mitutoyo Digital Optical Comparator
  - Various Mitutoyo Digital Height Gages
  - Milli-Ohm Meter
  - Spectrometer
  - Multiple Surface Plates, indicators, micrometers, calipers and other hand held inspection tools

ADDITIONAL FACTS
- Plant Size: 286,000 square feet
- Manufacturing: 250,000 square feet
- Sample Plan: Based on MIL-STD-105, Level II
- Water Filtration System: All process lines are integrated with a reverse osmosis filtrations system. Over 80 percent of the industrial waste stream is recovered for purification and recycling.
CENTURION® ELITE
DISTINCTIVE ALUMINUM CASES

TOP-OF-THE-LINE
QUALITY AND STYLE
HIGH STRENGTH
LIGHTWEIGHT

CLEAN, SIMPLE LINES CHARACTERIZE THESE UNIQUE CARRYING CASES

The seamless, clean surfaces of the deep drawn aluminum case shells, accented by their distinctive styling beads, are now available in either a clear anodized finish which highlights the natural beauty of satin-anodized aluminum, or in a textured black powder paint finish.

The strength and durability of these cases are field proven in actual use—worldwide.

Dust and weather resistant.

Strong enough to stand on, thanks to specially heat-treated shells; and, even the largest case weighs only 17 pounds.

IMPRESSIVE PERFORMANCE

Ultimate in appearance, reliability and versatility.

Positive-locking latches assure secure closing, while complementing the case’s clean styling.

Fully-gasketed tongue-and-groove closure extrusion, mechanically formed.

Sealed case integrity while permitting installation of adjustable panel support brackets (optional).

Significant cost savings over other design methods of attaching angles for panel-mounted equipment.

Blank panels available for all cases by special order.

CENTURION® ELITE FEATURES

CASE SHELL Deep drawn aluminum alloy, heat treated.

CLOSURE Interlocking tongue and groove extrusion of 6063-T5 aluminum alloy, mechanically formed and compressed to case shell. Lower closure accepts panel support brackets for Z100X, Z200X and Z700X Series.

FEET Aluminum—riveted to case.

FINISH —Silver Satin anodized (sulfuric acid) on all exposed surfaces. —Black powder paint interior and exterior (Z100X and Z700X Series).

HANDLE Gray injection molded acrylic based multi-polymers. Maximum carry weight 60 lbs.

SEAL Elastomeric neoprene gasketed seal.

LOCK Z100X: Combination Lock Z700X: Combination Lock Z200X: Keyed Latch

Hinge Z100X: Continuous-type aluminum with stainless steel pin riveted to case. Z200X & Z700X: Two (2) separable hinge assemblies, nickel plated stainless steel riveted to case.

LATCHES Z100X: Two positive locking pull-down type, chrome plated. Z700X: Two positive locking pull-down type, chrome plated. Z200X: One keyed latch, one pull-down type, chrome plated.

ZERO brand nameplate mounted on upper case shell.

TOLERANCE ± 0.06".

Please see page 7.
THE WHEELED INDUSTRIAL CASE

Tired of carrying that case filled with instruments, tools or sales samples? The answer is ZeRoller™ for distinguished portability and convenience.

ZeRoller combines the ultimate carrying case with a rolling system engineered to make transport as easy as possible.

The roller system is mounted externally so there is very little intrusion on the inside of the case.

Case dimensions meet allowable cabin/carry-on luggage sizes.

ZEROLLER SYSTEM FEATURES

<table>
<thead>
<tr>
<th>Handle</th>
<th>Telescoping plastic handle, push-button locking system</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheels</td>
<td>High quality rubber with ball bearings.</td>
</tr>
<tr>
<td>Housing</td>
<td>Constructed of high-impact resistant plastics.</td>
</tr>
<tr>
<td>Interior Options</td>
<td>Layered Foam: Order using part number ZP21745-1 for Z105ZRX or ZP21745-3 for Z107ZRX</td>
</tr>
</tbody>
</table>

CASE NUMBERS & DIMENSIONS

<table>
<thead>
<tr>
<th>Case No.</th>
<th>Exterior Width</th>
<th>Exterior Length</th>
<th>Interior Height</th>
<th>Upper Shell Interior Height</th>
<th>Lower Shell Interior Height</th>
<th>Material Thickness</th>
<th>Approx. Weight</th>
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<tbody>
<tr>
<td>Z105ZRX-SI/ON</td>
<td>13.00</td>
<td>21.00</td>
<td>6.50</td>
<td>2.75</td>
<td>3.75</td>
<td>0.040</td>
<td>8.7</td>
</tr>
<tr>
<td>Z107ZRX-SI/ON</td>
<td>13.00</td>
<td>21.00</td>
<td>7.50</td>
<td>2.75</td>
<td>3.75</td>
<td>0.040</td>
<td>8.9</td>
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</table>

Note: Measurements shown in inches. Weight shown in pounds. Price and delivery available by calling the ZERO Stock Sales Department.

SI = Silver Clear Anodized   ON = Black Onyx Powder Coat Paint
Select from 25 standard sizes.

Construct of durable aluminum alloy.

Select from 2 standard finishes.
Silver Anodized, or Onyx Black Powder textured paint finish.

Equipped with: Triple Digit Combination Lock, and Fixed Hinge

Fixed Hinge and depending on case size, 1 or 2 lid stay arms

Just add your equipment and go!

See Page 9 for complete dimensions and weights.

ACCESSORIES/OPTIONS

Panel—Panel dimensions and drawing specifications—See Table 2, page 9.

Brackets—See page 9 for drawing, part number and installation instructions.

Caster Kit—available only on case numbers Z109X, Z110X and Z129X.

ORDER Z100X CASES, FINISH, PANEL AND BRACKETS

Order by Part Number for each item: Case, Finish, Panel and/or Brackets

Z100X Case: _______ – _______ Color/Finish = SI Silver Clear Anodized
Example: Z101X–SI Onyx Black Powder Paint

Z100X Panel: ZP108000– ___________ See Page 8, Table 2

Z100X Brackets: ZP20653–1 ___________ Specify Quantity
Note: See Page 19 for ordering Foam Cushion Sets.

ORDER CUSTOM SIZES

Call Toll Free 800.959.5050

CENTURION® ELITE 2013 CARRYING CASE CATALOG

quotes@zerocases.com  |  www.zerocases.com
Fax 801.415.1771  |  Direct 801.299.5978
### TABLE 1

**Z100X SERIES CASES**

<table>
<thead>
<tr>
<th>EXTERIOR</th>
<th>INTERIOR TOTAL HEIGHT</th>
<th>UPPER SHELL INTERIOR HEIGHT</th>
<th>LOWER SHELL INTERIOR HEIGHT</th>
<th>MATERIAL THICKNESS</th>
<th>NET WEIGHT lbs</th>
<th>CASE MODEL</th>
<th>CASE MODEL</th>
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<tr>
<td>A WIDTH</td>
<td>B LENGTH</td>
<td>H¹</td>
<td>H²</td>
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<tr>
<td>8.50</td>
<td>19.75</td>
<td>14.49</td>
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<td>Z132X–SI</td>
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<td>9.00</td>
<td>12.00</td>
<td>5.00</td>
<td>2.00</td>
<td>3.00</td>
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<td>Z100X–SI</td>
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<td>9.00</td>
<td>16.00</td>
<td>7.75</td>
<td>2.50</td>
<td>5.25</td>
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<tr>
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<td>3.75</td>
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<td>3.00</td>
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<td>Z134X–SI</td>
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**SILVER**

**ONYX**

Measurements shown in inches. Non-stock cases require additional lead time. Price and delivery available upon request. Lower shell of model Z114X, Z116X and Z132X are complete with spot welded wrap-around riser section.

**TIP:** Bead configuration differs from illustration shown.

### TABLE 2

**Standard Instrument Panels**

<table>
<thead>
<tr>
<th>CASE</th>
<th>A</th>
<th>B</th>
<th>RADIUS</th>
<th>PANEL NUMBER</th>
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<th>B</th>
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Measurements shown in inches. For bracket drawing, part number and installation instructions, please see page 12.
TAKE A SIGNIFICANT STEP FORWARD WITH EMI SHIELDED CARRYING CASES

- Provides a minimum of 45 dB protection—30MHz to 1GHz.
- Secure, yet economical solution to shielding problems often encountered in portable applications.
- Keyed Latch
- Available in many standard sizes, for a variety of applications.
- Equipped with separable hinges.

**Table 1**

<table>
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<tr>
<th>EXTERIOR WIDTH</th>
<th>EXTERIOR LENGTH</th>
<th>INTERIOR HEIGHT</th>
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<th>LOWER SHELL INTERIOR HEIGHT</th>
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<th>NET WEIGHT LBS</th>
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Measurements shown in inches.
* Bead configuration differs from illustration shown.

Important: If you are planning to install a panel in your case, please check dimensioning of closure extrusions (see Page 11, Section AA) for proper fit.

**Table 2**

Standard Instrument Panels
0.125" 6061-T6 Aluminum Alloy, furnished with a Chemical Film Finish

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<th>CASE MODEL</th>
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<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>J</th>
<th>K</th>
<th>L</th>
<th>M</th>
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<td>–</td>
<td>6.080</td>
<td>17.660</td>
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ZERO ENGINEERS DEVELOP FLEXIBLE CASE SOLUTIONS

ZERO's Design Engineers have developed an optional environmentally sealed mounting panel.

- Utilizes same closure system as EMI version.
- Permits operation of an open case in field portable situations without damage to internal components and circuits.

Contact ZERO Design and Engineering for assistance, questions and expertise.

CERTIFIED INDEPENDENT TESTING

ZERO’s Centurion® Elite Z200X Series Cases have been tested by Chomerics, Inc., one of the nation's leading independent laboratories specializing in EMI/RFI emissions testing.

For additional information, please contact ZERO or your representative.

ORDER CENTURION ELITE Z200X CASES WITH GASKET, PANEL AND BRACKETS

Order by Part Number for each item (Case, Panel and/or Brackets)

**Z200X Case with Gasket**

Case ________ - ________ Select W = Weather Gasket or E = EMI Gasket

Example: Z201X - W Model Z201X Case with Weather Gasket

**Z200X Panel:** ZP20568 - ________ See Table 2 on Page 10

Example: ZP20568 - 3

**Z200X Brackets:** ZP20654 - 1 ________ Specify Quantity

Call Toll Free 800.959.5050
Direct 801.299.5978  Fax 801.415.1771
Email sales@ZEROcases.com  Web www.ZEROcases.com

BRACKET FOR Z200X SERIES

<table>
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<th>OPTIONAL PANEL SUPPORT BRACKET</th>
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**SECTION AA Z200X SERIES**

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<td>PANEL (REF.)</td>
<td>SET SCREW</td>
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<td>“W” ENVIROMENTAL SEAL</td>
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<td>.68 REF.</td>
<td>.68 REF.</td>
<td>.68 REF.</td>
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BRACKET INSTALLATION INSTRUCTIONS

1. Insert Bracket into Extrusion.
2. Rotate downward until Support Bracket is seated.
3. Slide Bracket laterally to align Bracket with Panel.
4. Tighten Set Screw.

Caution: Do Not Over Tighten!
CENTURION® ELITE
Z700X SERIES SEPARABLE HINGE FEATURE

Separable hinges allow cover to be removed easily to separate upper and lower shells, and to pivot shells in for a unique open case mode for your equipment.

TABLE 1

<table>
<thead>
<tr>
<th>Z700X SERIES CASES</th>
<th>Separable Hinges</th>
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<td>HEIGHT</td>
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<td>-------</td>
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<tr>
<td>20.00</td>
<td>29.00</td>
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Measurements shown in inches. Non-stock cases require additional lead time. Price and delivery available upon request. Lower shell of model Z114X, Z116X AND Z132X are complete with spot welded wrap-around riser section.

*Bead configuration differs from illustration shown below. Contact ZERO for detailed information.

**Total Interior Width and Length do not include closure inclusion.

TIP: INSTALL A PANEL

If you are planning to install a panel in your case, please check dimensioning of closure extrusions illustrated below.

TABLE 2

Order Panels And Brackets for the Z700 Cases

| Instrument Panels 0.090" 6061-T6 Aluminum Alloy |
|-----------------|-----------------|
| CASE | A | B | RADIUS | PANEL NUMBER | CASE | A | B | RADIUS | PANEL NUMBER |
| Z700X | 8.22 | 11.22 | 0.62 | ZP108000-100 | Z701X | 8.20 | 15.20 | 0.84 | ZP108000-101 |
| Z701X | 8.20 | 15.20 | 0.84 | ZP108000-101 | Z714X | 16.22 | 17.22 | 0.84 | ZP108000-114 |
| Z702X | 12.22 | 17.22 | 0.84 | ZP108000-102 | Z716X | 8.20 | 15.20 | 0.84 | ZP108000-116 |
| Z703X | 12.22 | 17.22 | 0.84 | ZP108000-103 | Z729X | 19.20 | 28.20 | 0.84 | ZP108000-129 |
| Z704X | 12.22 | 17.22 | 0.84 | ZP108000-104 | Z734X | 12.20 | 25.70 | 0.84 | ZP108000-134 |
| Z705X | 12.22 | 20.22 | 0.84 | ZP108000-105 | Z736X | 12.80 | 17.80 | 0.84 | ZP108000-136 |
| Z706X | 16.20 | 20.20 | 0.84 | ZP108000-106 | Z738X | 10.47 | 15.72 | 0.84 | ZP108000-138 |
| Z707X | 12.22 | 20.22 | 0.84 | ZP108000-107 | Z740X | 11.22 | 31.72 | 0.84 | ZP108000-140 |
| Z709X | 17.20 | 25.20 | 0.84 | ZP108000-109 | Z742X | 17.17 | 25.17 | 0.59 | ZP108000-142 |
| Z710X | 17.20 | 25.20 | 0.84 | ZP108000-110 |

Closeup of Separable Hinge
CREATE ANY TYPE OF MODIFICATION TO CENTURION STANDARD ALUMINUM CASES

- Custom Cutouts
- Special Hole Patterns
- Accessory Brackets
- Related Operations

ZERO offers a variety of standard hardware options and customization on the following pages as a fast and efficient means for customized cases. Lead time and cost vary depending on the complexity.

Please consult ZERO’s Design and Engineering department for design assistance.

KEYED LATCH STANDARD

- Z200X Series Cases are equipped with one keyed latch as standard equipment.

KEYED LATCH OPTION

- Z100X Series Cases for added security.
- Z200X Series Cases—Additional latches may be added.

KEY-ALIKE LOCKS OPTION

- Specify a common key for multiple case orders—using keyed-alike locks.
- Combination locks require special set-up and additional lead time.

MODIFIED OPTION

- Customize with cutouts, mounting holes, brackets and more.

INNER PANEL OPTION

Many more options are available.
CENTURION® ELITE
MODIFIED ALUMINUM CASES

INTERIOR REQUIREMENTS

FOAM
Options: Blank Layered Cushion Set (Page 18)
         Diced Layered Cushion Set (Page 18)
         Custom–Provide Drawings and/or Material Specifications

PANEL Single or Multiple
Options: Standard Inner Lid Assembly (Page 17)
         Standard Z100X or Z700X Series Panel (Page 17)
         Standard Z200X Series Panel (Page 19)
         Custom Panel–Specify
         Silk Screening

PANEL BRACKETS
Options: Standard Z100X Series ZP20653 (Page 20)
         Standard Z200X Series ZP20654 (Page 20)

GASKET
Options: Standard Neoprene (Page 14)
         EMI Shielded (E) (Page 18)
         Weather/Environmental (W) (Page 18)

Additional Requirements ________________________________

INTERIOR OPTIONS
ZERO can equip your case with internal support brackets and panels to meet special equipment mounting requirements. Storage compartments and foam cushioning in sheet, convoluted or die cut foam are also available.

Substitutions, additions and/or deletions in latches, hinges, handles, lid stays, locks, type of finish or color can be handled, without delay, from an extensive inventory of accessory items (pages 24 and 25).

A complete range of secondary operations are readily available from ZERO’s skilled, special fabrication departments. ZERO will quote any such requirements on request, and will build your case to your prints, or offer complete design assistance.

EXTERIOR OPTIONS
In designing a modified Centurion Elite case, the following will need to be specified:

Base Case Number ________________________________
Upper Shell Height, Interior ________________________
Lower Shell Height, Interior ________________________

FINISH
Options: Silver or Onyx Black Powder Paint (Standard)
         Anodize–Specify Color ____________________________
         Custom Paint Color–Specify FED-STD-595
         Silk Screening
         Other–Specify ________________________________

HINGE
Options: Fixed Piano/Continuous
         Separable–Two Assemblies (Page 16)

LOCK
Options: Combination
         Keylock, Assorted
         Keylock, Keyed Alike
         None

LATCH
Options: Standard Drawbolt
         Keyed Latch (Page 16)
         ZSP2-204 (Page 16)
         ZSP2-210 (Page 16)

HANDLE
Options: Standard Plastic
         ZSP20136 (Page 16)
         ZSP20137 (Page 16)

FOOT
Options: Aluminum
         Rubber ZSP7-718 (Page 16)
EXTRA HEIGHT CASES WITH RISERS

Cases in the standard Elite line can each be modified into an almost infinite combination of case heights, if required. Table 3 (C Columns) shows the minimum/maximum height range of each shell.

- Any combination of dimensions may be ordered within the limits shown. If additional height is required, a riser section(s) can be added to the basic shells.

ZERO reserves the right to provide a riser section in either configuration (Section CC).

- Gain extra height with the combination of extrusion and sheet metal wrap. Splice located at maximum draw depth.

- Silver Finish: Risered models (Z128X, Z129X and Z130X) are fine sanded and sulfuric acid anodized on all exposed surfaces.
HANDLES
PART #ZP20136
- MATERIAL: Steel Plate and Pull-Down Grip
- Non-Rigid Synthetic Resin Composition
- WEIGHT: 0.43 lbs
- PERFORMANCE DATA: Design Load 100 lbs
- Pull-Down Stops at 90° Open Position
- Spring Returns to Pull-Down Position Shown

PART #ZP20137-1 (without holes)
PART #ZP20137-2 (with holes)
- MATERIAL: Aluminum Plate, Steel Pull-Down with Rubber Grip
- WEIGHT: 0.50 lbs
- PERFORMANCE DATA:
- Spring Loaded, Rattle Proof
- Carries at 90°
- Designed to Lift 150 lbs

LATCHES
PART #HP25051-1
Keyed Latch

PART #ZSP2-210-1
- MATERIAL: Steel
- PERFORMANCE DATA:
- Preloaded to 90 lbs
- Withstands 300 lbs Pull

PART #ZSP2-204-1
- MATERIAL: Steel
- WEIGHT: 0.10 lbs
- PERFORMANCE DATA:
- Preloaded to 70 lbs
- Withstands 400 lbs Pull

FEET
RUBBER FOOT
PART #ZSP7-718

HINGE
PART #ZP20281-1 Separable (long pin)
PART #ZP20281-2 Separable (short pin)
PART #ZP20282-3 Non-Separable
- MATERIAL: Stainless Steel, Nickel Plated
- WEIGHT: 0.104 lbs
INNER LID ASSEMBLY
PART #HP25013

- MATERIAL: 6061-T6 Aluminum per QQ-A250/11 0.060" thick
- PERFORMANCE DATA: Push button latch is specially designed for use with arctic mittens. Card or book clips may be attached directly to lid. Lid is contoured to match radius of lid with reliefs cut in hinged edge to permit opening over 90°.

Note: Lowest possible position of lid is 0.69" above parting line. For non-standard location of Inner Lid assembly, please contact ZERO.

CARD CLIPS
PART #ZSP9-902
- MATERIAL: Spring Tempered Steel
- WEIGHT: 0.09 lbs
- PERFORMANCE DATA: 0.27 lbs Camping Force When Deflected 0.06 inches

PART #ZSP9-903
- MATERIAL: Spring Tempered Steel
- WEIGHT: 0.04 lbs
- PERFORMANCE DATA: 0.27 lbs Camping Force When Deflected 0.06 inches

CONTACT US
NEED A QUOTE? Have any questions? Want to learn more? Contact ZERO.
800.500.9376
PROTECT FROM SHOCK AND VIBRATION

Blank layered foam cushion sets are available for every Centurion® Elite carrying case.

Diced layered foam packs are also available for select sizes.

All systems are available from stock, and offer a fast, economical answer to your equipment packaging requirements.

BLANK LAYERED CUSHION SET

PART #M44784 Blank Layered Foam Cushion Set

GET A SNUG FIT

Protect your most delicate equipment by specifying PART #M44784 foam pack, made of Gray 1.6 lb pcf density, polyurethane foam, layered bottom and convoluted top.

Standard foam packs are available from stock to fit all standard Centurion® Elite cases.

DICED LAYERED CUSHION SET

PART #M42807 Diced Layered Foam Cushion Set

Foam pack made of gray polyurethane foam 1.6 lb pcf density layered bottom and convoluted top.

Two of the bottom layers are blank foam and two layers are pre-cut squares. Remove blocks for the desired equipment cavity, the rest of the cushion remains intact.

Available for case numbers: Z100, Z102, Z103, Z105, Z106, Z110.

ORDER LAYERED CUSHION SET

Blank Layered Cushion Set

M44784

Case Model Number

SAMPLE PART NUMBER

M44784-101

ORDER DICED CUSHION SET

Diced Layered Cushion Set

M42807

Case Model Number

SAMPLE PART NUMBER

M42708-101
An improperly packaged enclosure can damage contents. Dissipating the energy created by extreme shock or by continual vibration in-transit is a highly-specialized art which extends beyond traditional engineering calculations. Determining the best method for properly abate this potentially destructive energy is essential to extending product life.

ZERO has designed and fabricated over one million specialized carrying cases with vibration and shock isolation systems. Working with the most demanding customers in high technology business, military and our national space program, ZERO’s Designers provide a wealth of specialized engineering knowledge and practical experience.

Contact ZERO for a free consultation to assist you on your next packaging requirement. We can design and recommend a system which satisfies your needs—saving you time and money.

POLYURETHANE FOAM
- Low-cost cellular packaging material.
- Predictable and excellent performance characteristics.
- Broad temperature range (-10° to +185°F) performance.
- Most frequently used cushioning material in case packaging.
- Can be coated for added moisture and abrasion resistance.
- Ease of fabrication into a variety of shapes makes polyurethane foam especially adaptable for use as a multi-cavity cushion material.
- Available in flat sheet stock or it can be molded into any required shape.
- Various colors and densities are available; the most common is Gray in density selections of 1.6, 2 and 4 lb pcf.

POLYETHYLENE FOAM
- Low-cost closed cell packaging material.
- Predictable performance characteristics.
- Ability to withstand high bearing loads.
- Provides excellent protection against shock, vibration and shifting during handling and transport.
- Various colors and densities are available; the most common is Charcoal Gray in density selections of 1.7, 2 and 4 lb pcf.

ZERO’S ANTI-STATIC FOAM MINIMIZES STATIC CHARGE
Both Polyurethane and Polyethylene Foams in anti-static options provide quick, but controlled dissipation of electrostatic charges—properties important to your sensitive electronic instruments, parts and products.
The watertight Centurion® MIL-Spec Series from ZERO Manufacturing, Inc. features deep-drawn heat-treated aluminum case shells with wrinkle-free surfaces, accented by distinctive styling beads. Sturdy and durable. Centurion MIL-Spec cases are strong enough to stand on, yet are ultra-lightweight.

MIL-Spec Cases are available in a variety of heights, finishes and with a choice of closures, and three different panel mounting flanges. For the ultimate in watertight carrying cases, choose ZERO’s Centurion® MIL-Spec series case.

FEATURES
- Watertight
- Gasketed Closures
- Separable Hinges to Remove Cover
- Closure features interlocking tongue and groove extrusion of 6063-T1 aluminum, permitting maximum sealing and alignment of two halves.

OPTIONS
- Hinged inner lids available as special order item.
- Panel Mounting Flange
- Panel Fabrication
- Mil-Spec Finishes
- Custom Engraving, Marking, Labeling
  *Except to 0.50 PSI

FINISH OPTIONS

Note: Except latches, handle, grip, hinges, valve.

POWDER COAT PAINT RECOMMENDED
- BK-Black 27038
- DB-Dark Blue 25045
- DS-Desert Sand 20372
- FG-Forest Green 24079
- GR-Gray 26307
- MB-Medium Blue 25190
- NG-NATO Green RAL6014
- OD-Olive Drab 24097
- OR-Orange 21400
- RD-Red 21105
- WH-White 27925
- YW-Yellow 23538

RHINOLINING™
- RB-Black
- RG-Gray

MIL-SPEC FINISHES
- A-No Finish.
- B-Chemical Film Per MIL-DTL-5541, Type I, Class 1A. Epoxy Primer per MIL-PRF-23377, Type 1, Class C2.
- C-Same as B Plus Paint Light Gray Semi-Gloss Polyurethane Color #26307 of FED-STD-595.
- E-Wash Prime per DOD-P-15328 and Epoxy Primer per MIL-DTL-53022, Type II, Paint Polyurethane Yellow Gloss Color #13538 of FED-STD-595.
- F-Same as B Plus Paint Strata Blue Gloss Polyurethane Color #15045 of FED-STD-595.

MIL-SPEC FINISHES cont.
- J-Same as B Plus Paint Olive Drab Lusterless Polyurethane Color #34088 of FED-STD-595.
- K-Same as B Plus Paint Aliphatic Polyurethane Camouflage Coating (CARC) per MIL-DTL-53039, Type II, Color #383 Green, #34094 of FED-STD-595.
- L-Special Order—Please Specify.
- W-Chemical Film Per MIL-DTL-5541, Type I, Class 1A. Epoxy Primer per MIL-DTL-53022, Type II, Paint Polyurethane Yellow Gloss Color #13538 of FED-STD-595.
- UA-Chem Film per MIL-DTL-5541, Type 1, Class 1A.

OTHER COLORS AND FINISHES AVAILABLE ON REQUEST
Commercial or military specification can be met in our completely equipped and staffed paint facility. In addition to supplying any color per FED-STD-595, PMS or RAL. ZERO has coded swatches to match any color.

PANEL FABRICATION
- Silk-Screening
- Engraving
- Custom Fabrication

CASE CUSTOMIZATION
- Stenciling
- Designation Printing
- Decals and Labels
- Silk-Screening
## Case Description and Hardware

### Basic Shell Dimensions

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### Latch

**PART #TC82Z20-01**
- **Material:** Cold Rolled Steel
- **Weight:** 0.108 lbs
- **Performance Data:** Positive Locking Bail Type

### Handle

**PART #ZSP3-304**
- **Material:** 6061-T6 Aluminum Alloy, Aluminum Plate, Steel Bail with 0.75 rubber grip
- **Weight:** 0.183 lbs
- **Performance Data:** Design Load 50 lbs. Bail has 180° free swing

### Hinge

**PART #ZP20281-1 Long Pin**
- **Material:** Stainless Steel
- **Weight:** 0.104 lbs
- **Performance Data:** Available in Separable Versions

**PART #ZP20281-2 Short Pin**
- **Material:** Stainless Steel
- **Weight:** 0.05 lbs
- **Performance Data:** Operating Media: Air or Nitrogen
  - Temperature Range: -65° to +160° F
  - Normal Ratings: Vacuum = 3.5 PSI
  - Pressure = 2.5 PSI

### Feet

**PART #ZP20118**
- **Material:** 6061-T6 Aluminum Alloy
- **Weight:** 0.06 lbs

### Valves

**PART #ZP20172 Manual Relief Valve**
- **Material:** Aluminum Alloy
- **Weight:** 0.02 lbs
- **Performance Data:** Complies with MS18014-1

**PART #ZSP6-037-1 Automatic Relief Valve**
- **Material:** Aluminum Alloy, Stainless Steel Spring
- **Weight:** 0.05 lbs
- **Performance Data:** Operating Media: Air or Nitrogen
  - Temperature Range: -65° to +160° F
  - Normal Ratings: Vacuum = 3.5 PSI
  - Pressure = 2.5 PSI
### CENTURION® MIL-Spec CLOSURE PANEL OPTIONS

#### PANEL DIMENSIONS

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**ZP21622 PANEL DIMENSIONS AND DASH PART NUMBERS**
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A FOR AUTOMATIC, M FOR MANUAL

SEE PAGE 22 FOR OPTIONS

Z114P

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A FOR AUTOMATIC, M FOR MANUAL

SEE PAGE 22 FOR OPTIONS
Z129P

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A FOR AUTOMATIC

M FOR MANUAL

SEE PAGE 22 FOR OPTIONS

SECTION A-A

H1 = 5.02

H2 = 5.02

GASKET (OPTIONAL)

INSTRUMENT PANEL (OPTIONAL)

NOTE: CASE SHELLS ARE NOT BEADED.

Z132P

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<td>USE DASH NUMBER FROM PAGE 22</td>
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</tbody>
</table>

A FOR AUTOMATIC

M FOR MANUAL

SEE PAGE 22 FOR OPTIONS

SECTION A-A

H1 = 2.00

H2 = 2.74

GASKET (OPTIONAL)

INSTRUMENT PANEL (OPTIONAL)
THE VALULINE™ SERIES PROVIDES A VARIETY OF FEATURES AND OPTIONS IN SELECTING A CASE

- Constructed of deep drawn aluminum shells, the case shells are seamless.
- Three closure options.
- Variations of internal panel mounting, give added versatility in the packaging of electronic, electro-mechanical, or instrumentation equipment.
- Custom sizes—You may design a case from the standard sizes of deep drawn enclosures in the Deep Drawn Catalog.
- All listed sizes can be utilized without a tooling charge.

VALULINE FEATURES AND SPECIFICATIONS

- Material: Aluminum Alloy.
- Latches: Zamak #7—nickel plated.
- Hinges: Riveted-nickel plated steel. Separable on all styles.
- Handle: Black molded plastic with nickel plated hardware.
- Feet: ZIC & ZC Series: Integral dimpled; ZIP Series: Four, black rubber.
- Gasket: Black extruded synthetic rubber—ZC and ZIP Series.
- Panels: Aluminum with chemical film finish.
- Material Thickness—0.090”.
- Tolerances: ± 0.06”

See page 32-37 for dimensions and details.

Case dimensions are always shown in the following order:
- WIDTH—the narrowest measurement, looking down on the case.
- LENGTH—the longest measurement, looking down on the case.
- HEIGHT—measured from base to top. The “upper” shell is designated H¹. The “lower” shell is designated H².

RADIUS

R¹ = The radius at the bottom of drawn shells.
R² = The radius at the sides of drawn shells.

SELECT FROM 13 TEXTURED POWDER COAT PAINT FINISHES FOR INTERIOR & EXTERIOR, LESS HARDWARE

OO Olive Drab Powder Coat, Color No. 24097
BK Black Powder Coat, Color No. 27038
DB Dark Blue Powder Coat, Color No. 25045
DS Desert Sand Powder Coat, Color No. 20372
FG Forest Green Powder Coat, Color No. 24079
GR Gray Powder Coat, Color No. 26307
LG Light Gray Powder Coat, Color No. 26622
MB Medium Blue Powder Coat, Color No. 25190
NG Nato Green Powder Coat, Color No. RAL6014
OR Orange Powder Coat, Color No. 21400
RD Red Powder Coat, Color No. 21105
WH White Powder Coat, Color No. 27925
YW Yellow Powder Coat, Color No. 23538

Most economical of the VALULINE cases.
Available in 11 off-the-shelf sizes.
ZC 7000 Series include separable hinges.
All cases feature fully gasketed, bonded closures which fit over the edge of the lower shell.

<table>
<thead>
<tr>
<th>ZC 7000 SERIES CASE</th>
<th>EXTERIOR</th>
<th>INTERIOR</th>
<th>ALLOY</th>
<th>T</th>
<th>LATCHES</th>
<th>WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>W</td>
<td>L</td>
<td>H¹</td>
<td>H²</td>
<td>R¹</td>
<td>R²</td>
<td>FRONT</td>
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<tr>
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<td>0.59</td>
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</tbody>
</table>

Measurements shown in inches. T=thickness. See page 32 for Valuline case specifications.

ORDER STANDARD SIZES
ORDER BY CASE NUMBER
ZC __________________________
Color _______________________

ORDER CUSTOM SIZES
Order by Series Number and specify detail information. See ZERO’s Deep Drawn Products Catalog for additional sizes.
Secondary Operations Available.

PLEASE SPECIFY
Width ________________________
Length _______________________
Color ________________________

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VALULINE™
ZIP 800 SERIES

ALUMINUM CARRYING CASES

- Most versatile series of the VALULINE cases.
- Fully gasketed closure of extruded aluminum, spot-welded to the interior case shell.
- Permits installation of optional panel support brackets.
- Permits full size primed panel (order separately).
- O-ring gasket provides additional environmental protection.

SEE PAGE 32 FOR VALULINE CASE SPECIFICATIONS.

<table>
<thead>
<tr>
<th>CASE NUMBER</th>
<th>W</th>
<th>L</th>
<th>H¹</th>
<th>H²</th>
<th>T</th>
<th>ALLOY</th>
<th>R¹</th>
<th>R²</th>
<th>FRONT</th>
<th>SIDE</th>
<th>HINGES</th>
<th>PANEL NUMBER</th>
<th>STANDARD MOUNTING BRACKETS</th>
<th>WT LBS</th>
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<td>.31</td>
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<td>2</td>
<td>1</td>
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<td>ZP9178-50</td>
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Note: W, L and H are exterior dimensions, R¹ and R², are interior dimensions. T = Thickness. Measurements shown in inches.

ORDER STANDARD SIZES
ORDER BY PART NUMBER FOR EACH ITEM
CASE, PANEL AND/OR BRACKETS, AND COLOR

EXAMPLE:
ORDER BY CASE NUMBER PANEL REQUIRED BRACKETS REQUIRED COLOR REQUIRED
ZIP ___________ ☒ ZP9178 - ☒ ZSP9-014-3 ☒ See Table Above See Table Above Specify Quantity See Page 32

ORDER CUSTOM SIZES
Order By Series Number and Specify Detail Information. See ZERO’s Deep Drawn Products Catalog for additional sizes.
Secondary Operations Available.

PLEASE SPECIFY

Width ____________________________
Length ____________________________
Cover Height H¹ _______________________
Case Height H² ________________________
Color ______________________

PAGE 32
ADJUSTABLE PANEL SUPPORT BRACKET
PART #ZSP9-014-3 Optional Accessory
The adjustable panel support bracket shown is an accessory. If required, specify quantity needed for interface with equipment panel (See ordering information).

Installation instructions shown at right.

INSTRUCTIONS FOR PERMANENT INSTALLATION OF PANEL SUPPORT BRACKET
1. Apply room temperature cure epoxy to contact surface of support bracket and insert bracket into extrusion slot as shown.
2. Rotate downward, as shown, until support bracket is seated.
3. Slide bracket laterally as required to align bracket with panel hole location.
4. Allow epoxy to cure prior to further handling. (Note: Epoxy can be obtained locally at most hardware or industrial supply houses.)

BRACKET INSTALLATION DIAGRAM

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CENTURION® VALULINE
ZIC 600 SERIES ALUMINUM CARRYING CASES

- Spot-welded, pre-drilled panel flange.
- Threaded inserts installed to accept a full-sized panel.
- Includes a chemical film finished panel with basic case.
- Finish: 13 Powder Coat Paint Finishes or Custom. See Page 32.

<table>
<thead>
<tr>
<th>CASE NUMBER</th>
<th>W</th>
<th>L</th>
<th>H¹</th>
<th>H²</th>
<th>T</th>
<th>ALLOY</th>
<th>R¹</th>
<th>R²</th>
<th>C</th>
<th>S</th>
<th>P</th>
<th>SIZE PANEL</th>
<th>WT LBS</th>
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<td>8.00</td>
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<td>6.00</td>
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<td>11000</td>
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<td>0.31</td>
<td>0.25</td>
<td>5.38</td>
<td>6.38</td>
<td>6.50 x 7.50</td>
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<tr>
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<td>6.31 x 10.31</td>
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Note: W, L and H are exterior dimensions, R¹, R², P and S are interior dimensions. T = Thickness. Measurements shown in inches. See page 32 for Valuline case specifications.

HOLE PATTERN DIMENSIONS

<table>
<thead>
<tr>
<th>CASE NUMBER</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>J</th>
<th>K</th>
<th>L</th>
<th>M</th>
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ORDER STANDARD SIZES
ORDER BY CASE NUMBER
ZIC________. ☐ See Table Above
Color __________ See Page 32

ORDER CUSTOM SIZES

PLEASE SPECIFY
Width ____________________________
Length __________________________
Cover Height H¹ __________________
Case Height H² __________________
Color __________________________  PAGE 32
OFF-SHELF AVAILABILITY WITH NO TOOLING CHARGE

These distinctively designed deep drawn aluminum instrument cases give small instruments a sales-appealing custom appearance at off-the-shelf prices.

- Seamless deep drawn body provides protection even under rugged conditions.
- Aluminum front panel, recessed for protection of dials, meters, knobs, etc., is attached with four slotted screws for quick access.

SPECIFICATIONS
- Material: ZIC 407 to 409: 1100-0, 0.063” Aluminum
  ZIC 411: 6061-0, 0.063” Aluminum
- Handle: Cast Aluminum, Brushed Finish
- Feet: Rubber
- Finish: Select from 13 Powder Coat Paint Colors, or Custom. See Page 32.

CASE NUMBERS AND DIMENSIONS

<table>
<thead>
<tr>
<th>CASE</th>
<th>Exterior Width</th>
<th>Exterior Length</th>
<th>Depth</th>
<th>Interior Radius 1</th>
<th>Interior Radius 2</th>
<th>Approx. Weight</th>
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</table>

Note: measurements shown in inches. Weight shown in lbs. See page 32 for Valuline case specifications.

ORDER STANDARD SIZES
ORDER BY CASE NUMBER
ZIC ___________ See Table Above
Color ___________ See Page 32

ORDER CUSTOM SIZES

PLEASE SPECIFY
Width ___________________________
Length __________________________
Depth ___________________________
Color ___________________________

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CENTURION® VALULINE
MODIFIED INSTRUMENT CASE HARDWARE
Standard Hardware Options

¬ HANDLES
PART #ZP20085
Used on ZIC 600, ZIP 800, ZC 7000 Series.

¬ HINGES
PART #ZSP4-4002-1 Separable (long pin)
PART #ZSP4-4002-2 Separable (short pin)
PART #ZP20282-3 Non-Separable
MATERIAL: Varies
WEIGHT: Varies

¬ FEET
PART #ZSP7-718
Used on ZIP 400, ZIP 800 Series
MATERIAL: Rubber

¬ LATCHES
PART #ZSP2-220-1

¬ ORDERING INFORMATION
• Select Case/Model No.
• Specify Inner Lid As Required
• Support Brackets Quantity As Required
• Hardware
• Color See Page 32

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Email Sales@ZEROcases.com Web www.ZEROcases.com
**GLOSSARY OF TERMS**

**Alloy:** An aluminum alloy is a metal that is a mixture of aluminum and one or more other elements.

- **1100:** 99% pure aluminum.
- **3003:** Aluminum/manganese alloy.
- **6061:** Aluminum/manganese/silicon alloy.

**Anodizing:** Electrochemically converting the surface of aluminum from metallic aluminum to aluminum oxide (alumina) by making aluminum the anode in a plating-type electrochemical cell. It is used not only for added protection, but also in conjunction with dying and sealing to create decorative effects.

**Artificial Aging:** Speeding up the natural aging cycle by heating the metal for a short time.

**CF:** Flush fitting cover.

**Cl:** Interior fitting cover.

**COG:** Exterior fitting cover with gasket clearance.

**COL:** Exterior fitting cover with loose fit.

**COT:** Exterior fitting cover with tight fit.

**Cold Working:** Applying a mechanical force (such as deep drawing) to metal at room temperature at such a rate that strain-hardening occurs.

**Deep Drawing:** Using a ram to force an aluminum sheet into a draw die to produce a shell. See also draw die. Deep drawing is also used to produce many cup-shaped products in other industries.

**Die:** See draw die.

**Draw Die:** Tooling used in the deep drawing process to produce shells.

**EMI Gasket:** A gasket used in closures and on panel flanges to keep EMI radiation from entering or escaping from an enclosure.

**EMI Shielding:** Shielding against radiated or conducted EMI/RFI.

**Flange:** A rim into which a panel can be mounted.

**Hardening:** Increasing the hardness of metal by suitable treatment such as by strain or heat. Associated with processes such as age hardening, strain or work hardening, precipitation hardening, or quench hardening.

**Heat Treat:** Temper produced by heating.

**Heat-Treatable Alloy:** An aluminum alloy that can be hardened by heat treatment. Generally includes those alloys in 2XXX, 6XXX, and 7XXX series.

**Height:** The depth of a shell.

**Mu-metal:** A metal with high nickel content (78% nickel, iron, plus other additions) providing high magnetic permeability. Mu-metal shells are used as enclosures or covers for shielding/magnetically isolating critical parts from magnetic interference. Mu-metal 'absorbs' magnetic lines in the vicinity rather than allowing them to pass through critical components.

**Nutplate:** A nut capable of receiving a screw for mounting a panel, etc.

**O.D.:** Outside diameter measured at tangency between bottom radius (R¹) and side.

**Points of Tangency:** The points at which the straight portions of the shell walls intersect the beginning of the radius corners.

**Precipitation Hardening:** A metal-treating process that increases the strength of aluminum by precipitation alloying material into the structure of aluminum. Natural aging is involved if the process occurs at room temperature, while artificial aging involves the application of heat.

**Quenching:** The quick chilling of aluminum to retain, at room temperature, the metallurgical structure produced by heat treatment at an elevated temperature.

**R¹:** The radius at the bottom of drawn shells.

**R²:** The radius at the sides of drawn shells.

**Reflectivity:** The ability of a surface to mirror or reflect radiant energy. The reflectance of aluminum is exceptionally high.

**RFI:** Radio frequency interference.

**Seamless Construction:** An exceptional attribute of deep drawn shells. Deep drawn shells have no seam.

**Secondary Aluminum:** Metal recovered aluminum scrap, segregated by alloy, and resmelted to produce purified metal. One of its more important uses is in the foundry industry. A great advantage of aluminum is that it can be recycled indefinitely, as a secondary product. This not only preserves aluminum as a natural resource, but it also saves energy, since secondary aluminum is less costly to produce.

**Solution Heat Treating:** A strengthening thermal treatment in which certain aluminum alloys are heated to a relatively high temperature and then held (soaked) for varying times. A rapid quench or natural aging follows the heating period.

**Strain Harden:** Tempering through strain. Same as work harden.

**Strength-to-Weight Ratio:** The ratio of tensile strength to the weight of a material.

**T:** Material thickness.

**Tangency:** See points of tangency.

**Temper Code:** A letter-number code which designates heat treatment and cold work processes to create a temper.

**Tensile Strength:** The maximum pulling load that a material can sustain without failure.

**Work Hardening:** Hardening which occurs as the result of deforming metal crystals. Same as strain hardening. Results from deep drawing and other cold forming processes, including bending.

**ZERO Method:** The technologies and craft of ZERO Manufacturing, Inc. deep drawn products.
Products

DEEP DRAWN COMPONENTS
- Precision Miniatures
- Stock Enclosures
- Value Added Enclosures
- In-Stock Deep Drawn

CARRYING CASES
- Style-Life™
- Valuline™
- Centurion® Elite™
- Centurion® MIL-Spec
- Centurion® On Demand

19” RACK MOUNTS
- Warrior™
- Scout™
- ValAn® 700™
- ValAn® 900™
- ZERAK™

TRANSIT AND STORAGE CONTAINERS
- Translainer™
- ValAn™
- Pre-Engineered Cases
- Modular Containers

Services

DESIGN
- Product Design
- Product Engineering
- Custom Foam
- Prototyping

FABRICATION
- Production/Manufacturing
- Assembly
- Drop Testing
- Environmental Testing

- Heat Treating
- Perforating
- Sheet Metal Fabrication
- Tool and Die Creation
- Welding

FINISHING
- Anodizing
- Chemical Etching
- Painting
- Powder Coating
- Silkscreening

Industries

- Military & Defense
- Aerospace
- Broadcast/Telecom
- Medical
- Electronics
- Industrial
- Homeland Defense

ZERO Knows...

PLASTIC & METAL
ZERO is the premier manufacturer of both metal and plastic protective enclosures.

DEEP DRAWN
ZERO perfected the deep draw process and has the largest range of tooling in the world. Large or small, we can handle virtually any deep draw requirement.

CUSTOM SOLUTIONS
ZERO’s capabilities range from very small custom enclosures to very large and complex fabricated assemblies.

SPEED
Manufacturing accelerates production lead times, so your product reaches you faster! Ask about our Quick-Ship, In-Stock and ‘On-Demand’ Programs.

SUCCESS
ZERO’s solutions are time-tested and field proven. With over 100 years engineering experience and 50 years, ZERO cases have been the benchmark for durability and longevity.

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