



CARRYING CASES



ZERO MANUFACTURING, INC.
ENCLOSURES • CONTAINERS • CASES • CUSTOM FABRICATION

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ZERO Centurion®

Valuline



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ZERO Centurion®

Elite



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Aluminum Instrument and Carrying Cases

ZERO Manufacturing, Inc. is the number one supplier of high performance, deep drawn aluminum cases. Instrument and carrying cases made from aluminum achieve the demanding standards required of our products.

– EXCEPTIONAL FEATURES OF DEEP DRAWN ALUMINUM PRODUCTS BY ZERO MANUFACTURING, INC. –

- **High Strength-to-Weight Ratio** – Lightweight aluminum alloys used in our cases are known for their 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, Tearing and Cracking** – Aluminum offers much better fracture toughness than do most other materials used in cases, 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 our aluminum cases actually 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 our cases excellent for RFI/EMI shielding and for ESD/grounding systems. Aluminum is also an efficient reflector for externally generated interference, including the electromagnetic wavelengths of radio and radar.
- **Heat Dissipation/Shielding** – Aluminum is widely used in “heat sinks” and heat exchangers because of its high thermal conductivity. In an enclosure it can efficiently transport heat away from electronics and other equipment. It also has high reflectance to encroaching radiated heat, such as sunlight. (Aluminum has a light reflectivity of over 80%.) Further, the low coefficient of thermal expansion of aluminum 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 therefore be used in a wide variety of special environments, including sanitary or clean rooms, food service areas and certain volatile environments, as well as for more traditional environments requiring such provisions as watertight, splash proof, drip proof and salt exposure protection.
- **Customizing Through Secondary Operations** – Our aluminum products can be customized and modified without the cost of special molds, through such secondary operations as drilling, laser cutting, riveting, welding, brazing, soldering, etc., provided at ZERO Manufacturing, Inc.. In addition, aluminum products by ZERO Manufacturing, Inc. accommodate virtually every kind of finish, whether mechanical (such as brushing or polishing), chemical (such as anodizing) or any of an almost unlimited variety of coatings (such as paint and powder coatings).

CASE/CONTAINER SELECTION GUIDE

OPTIONS AVAILABLE	CENTURION® POLARIS CASES*	VAL AN® SERIES*	VAL AN® 900 SERIES*	PRE-ENGINEERED RUGGEDIZED CASES*	MODULAR CONTAINERS*	CENTURION® ELITE CASES	CENTURION® VALULINE CASES
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SPECIFICATIONS:

MIL-C-4150				X	X		
MIL-STD-108	X	X	X	X	X		
MIL-STD-810**			X	X	X		
MIL-T-28800			X	X	X		

CASE TYPE:

Instrument Case	X	X	X	X	X	X	X
Transit Case	X	X	X	X	X	X	X
Combination Case	X	X	X	X	X	X	X
Accepts 19" EIA Panel			X		X		

PERFORMANCE:

Watertight	X	X	X	X	X		
Splash Proof	X	X	X	X	X		
Drip Proof	X	X	X	X	X		
Salt Exposure	X	X	X	X	X		
Dust Proof	X	X	X	X	X		
EMI Shielded	X	X	X	X		X	

EXAMPLE ACCESSORIES:

Fork Lift Guides					X		
Hoisting Grapple			X	X	X		
Separable Hinges	X	X		X		X	X
Skid Rails				X	X		

An "X" indicates option is available, but not necessarily standard. As definitions may vary from customer to customer, consult this catalog or ZERO Manufacturing, Inc. for more specific details.

*Not included in this catalog. See separate catalog (No. RR2004) published by ZERO Manufacturing, Inc. for information regarding these cases/containers.

**Tests as applicable to cases/containers.

NOTE: For a complete list of plastic case / solutions, see separate catalog (No. PL2005) published by ZERO Manufacturing, Inc. or visit our website at www.zerocases.com

ZERO Manufacturing, Inc. U.S. Government Procurement Vendor Code/Cage ID Number: 98376. ZERO Manufacturing, Inc. is also the source for deep drawn or case assemblies with the following ID Numbers (Company): 19178 (ZERO East), 2J777 (ZERO Halliburton), 53031 (TA Case Company), 11357 (M&M) Electronics Enclosures), 94637 (Halliburton Enterprises), 76561 (Moorlee Manufacturing Company).
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No. CC2005 Rev. 8/2005

Equipment and Capabilities

ZERO Manufacturing, Inc. is the leader in the manufacture of quality, deep drawn and fabricated cases and enclosures. Offering over 32,000 pre-tooled sizes of deep drawn enclosures, and virtually unlimited sizes and configurations, ZERO Manufacturing, Inc. is the source for secondary operations and customization, whether commercial or military specification.



Deep Draw

Presses:

Thirty 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 32,000 pre-tooled sizes, ZERO can tool for any size, depth or material.

Shears:

Blanks are cut on automatic coil shears or conventional 12 foot shears for sheet stock.

Certified to meet MIL-H-6088 and customer specifications.



Processes:

Washer System:

Automatic titrating conveyor system 6' x 90'.

Etch:

For weld preparation and cleaning.

Chemical Film:

Certified to meet MIL-C-5541, Classes 1A and 3.

Aluminum & Metal 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: .000039"

Position Accuracy: .0039"

Repeatability: Ps .0012"

Working Height: 28"



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 metal fabricator.

Extrusion Forming:

Three heavy-duty and two light-duty benders for forming extrusions.

Shears:

Three shears, 12 feet wide, with 10 gauge capacity and digital back gauging.



Environmental Testing

Three test tanks to test for watertight integrity per MIL-STD-108.



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 used as well.

Painting

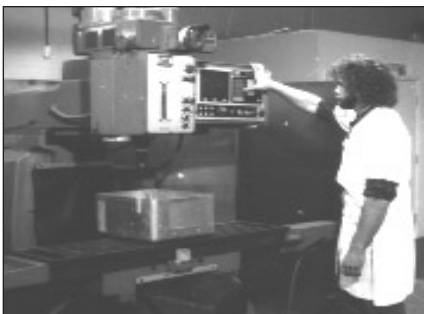
The ZERO Manufacturing, Inc. paint system was custom designed to accommodate all enclosure products and types of paint. The primary system is completely enclosed and supplied with a 100,000 cfm filtered, climate controlled air make-up system.



Layout: A 540 foot overhead conveyor runs through five alternatively opposed filter booths and a 60 foot long 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 ovens for short runs.

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.

Additional Facts

Plant Size: 286,000 square feet
Manufacturing: 250,000 square feet
Sample Plan: Based on MIL-STD-105, Level II

ZERO is an ISO 9001:2000 certified company.

SPC certified supplier to major and key customers.

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.

Engineering Capabilities: Thirteen CAD-based design systems. Can custom design to meet all customer and military specifications. Manufacturing engineering is performed on the latest computer network system.

CENTURION® VALULINE CARRYING CASES

The ZERO Manufacturing, Inc. Centurion® Valuline series provides a variety of options in selecting a case that best satisfies your needs.

Constructed of deep drawn aluminum shells, the case shells are seamless. Three closure options, along with variations of internal panel mounting, give added versatility in the packaging of electronic, electro-mechanical, or instrumentation equipment.

In addition to the standard sizes listed on the following pages, you may design a special case from the large choice of standard sizes of deep drawn enclosures listed in the **ZERO Manufacturing, Inc. Deep Drawn Products** catalog. All of these sizes can be utilized without a tooling charge.



CASE SPECIFICATIONS:

Material	Aluminum alloy.
Latches	Zamak #7 - nickel plated. (See page 13 for dimensions.)
Hinges	Riveted-nickel plated steel. Separable on all styles. (See page 13 for dimensions.)
Handle	Black molded plastic with nickel plated hardware. (See page 13 for dimensions.)
Feet	ZIC & ZC Series: Integral dimpled; ZIP Series: Four, black rubber. (See page 13 for dimensions.)
Gasket	Black extruded synthetic rubber - ZC and ZIP Series.
Finish	Medium blue textured powder paint inside and outside. Additional colors available on request.
Panels	Aluminum with chemical film finish (material thickness - .090").
Tolerances	±.06".

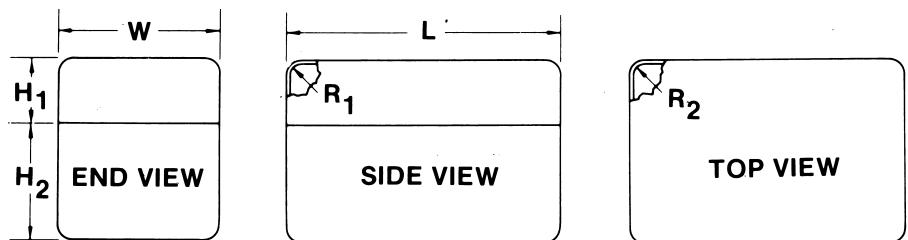
Case dimensions are always shown in the following order:

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.



ZC 7000 SERIES

ZC 7000 SERIES ALUMINUM CARRYING CASES

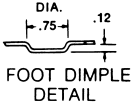
Most economical of the Valuline cases, the ZC 7000 Series cases are available in 11 off-the-shelf sizes. All cases feature fully gasketed, bonded closures which fit over the edge of the lower shell. ZC 7000 cases have separable hinges.



CASE NUMBER	W	L	H1	H2	T	ALLOY	R1	R2	LATCHES		WT. LBS.
									FRONT	SIDE	
ZC 7010	4.00	7.00	1.25	2.91	.06	1100-0	.31	.31	2	-	1.3
ZC 7020	4.00	8.75	1.25	2.91	.06	1100-0	.19	.25	2	-	1.6
ZC 7030	5.00	7.00	1.25	3.66	.06	1100-0	.31	.31	2	-	1.7
ZC 7040	5.50	8.00	1.25	3.66	.06	1100-0	.25	.25	2	-	1.8
ZC 7050	5.69	10.00	1.25	4.66	.06	1100-0	.25	.25	2	-	2.3
ZC 7060	6.00	9.00	1.25	4.66	.06	1100-0	.31	.31	2	-	2.2
ZC 7070	6.00	14.50	1.38	4.53	.06	1100-0	.44	.50	2	-	2.9
ZC 7080	7.00	11.00	1.50	5.41	.06	6061-0	.50	.31	2	-	2.9
ZC 7090	8.00	14.00	1.88	6.03	.06	6061-0	.88	.88	2	-	3.8
ZC 7100	9.00	9.00	1.50	6.41	.06	6061-0	.50	.50	2	-	3.2
ZC 7110	9.18	13.25	1.63	7.28	.06	6061-0	.59	.59	2	1	4.6

Note: W, L and H are outside dimensions: R1 and R2 are inside dimensions. Measurements shown in inches. T = Thickness.

SEE PAGE 6 FOR VALULINE CASE SPECIFICATIONS.



ORDERING INFORMATION

Standard Sizes

Order by case number.

ZC _____

Special Sizes:

See **ZERO Manufacturing, Inc. Deep Drawn Products catalog** for additional sizes.

Order by Series Number and specify detail information.

Secondary operations available.

Please specify:

Width: _____

Length: _____

Cover Height (H1): _____

Case Height (H2): _____

ZIP 800 SERIES

CASE NUMBER ^①	W	L	H1	H2	T	ALLOY	R1	R2	LATCHES		HINGES	② PANEL NO.	STD. MTG. BRKTS.	WT. LBS.
									FRONT	SIDE				
ZIP 805-A	6.00	9.00	2.50	5.00	.06	1100-0	.31	.31	2	-	2	ZP 9178-05	4	2.9
ZIP 810-A	7.00	11.00	2.50	7.00	.06	6061-0	.50	.31	2	-	2	ZP 9178-10	4	3.9
ZIP 820-A	8.00	14.00	2.50	7.00	.06	6061-0	.88	.88	2	-	2	ZP 9178-20	6	4.8
ZIP 830-A	8.75	12.00	2.50	8.00	.06	6061-0	.50	.75	2	-	2	ZP 9178-30	6	4.8
ZIP 840-A	9.19	13.25	2.50	9.00	.06	6061-0	.59	.59	2	-	2	ZP 9178-40	6	5.6
ZIP 850-A	10.00	16.00	2.50	9.00	.09	6061-0	1.00	1.00	2	1	3	ZP 9178-50	8	8.8

Note: W, L and H are outside dimensions, R1 and R2, are inside dimensions. T= Thickness.

Measurements shown in inches.

SEE PAGE 6 FOR VALULINE CASE SPECIFICATIONS.

ZIP 800 SERIES ALUMINUM CARRYING CASES

Most versatile series of the Valuline cases, they feature a fully gasketed closure of extruded aluminum, spot-welded to the interior case shell, to permit installation of optional panel support brackets and full size primed panel. (Order separately). An O-ring gasket provides additional environmental protection.



ORDERING INFORMATION

Standard Sizes

Order by part number for each item (case, panel and/or brackets)

Example:

Order by case number.

ZIP _____^① - A

(see table above)

If panel is required:

ZP9178-_____^②

(see table above)

If brackets are required:

ZSP9-014-3

(specify quantity)

Special Sizes:

See **ZERO Manufacturing, Inc. Deep Drawn Products catalog** for additional sizes.

Order by Series Number and specify detail information.

Secondary operations available.

Please specify:

Width: _____

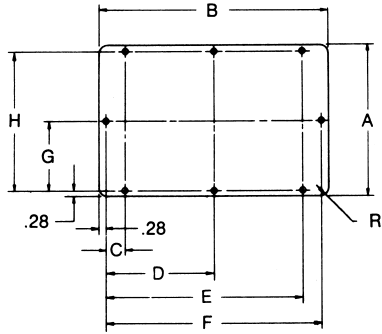
Length: _____

Cover Height (H1): _____

Case Height (H2): _____

ZIP 800 SERIES

ZIP 800 Series Panel Dimensions



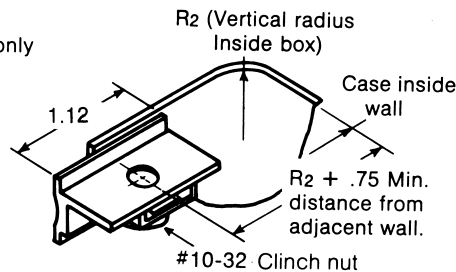
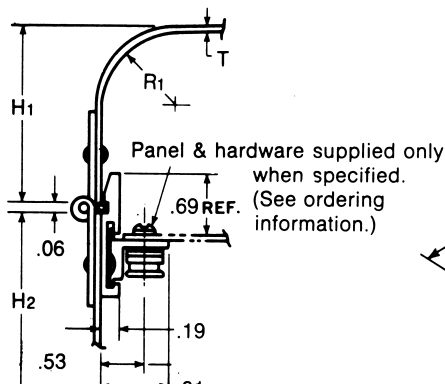
PANEL NUMBER	A	B	C	D	E	F	G	H	R	NO. OF HOLES
ZP 9178-05	5.37	8.37	1.50	–	6.31	–	–	4.81	.19	4
ZP 9178-10	6.37	10.37	2.00	–	7.81	–	–	5.81	.19	4
ZP 9178-20	7.37	13.37	2.88	–	9.94	12.81	3.41	6.81	.63	6
ZP 9178-30	8.12	11.37	2.00	–	8.81	10.81	3.78	7.56	.50	6
ZP 9178-40	8.56	12.62	2.50	–	9.56	12.06	4.00	8.00	.44	6
ZP 9178-50	9.31	15.31	2.50	7.37	12.25	14.75	4.38	8.75	.75	8

Measurements shown in inches.

Material: 6061-T6 AL. Alloy. Thickness = .090"

Finish: Epoxy primer per MIL-PRF-85582, Type I, CL. N.

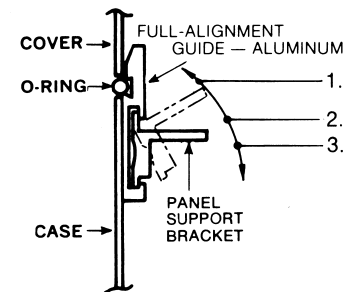
Measurements shown in Inches



ADJUSTABLE PANEL SUPPORT BRACKET ZSP 9-014-3

The adjustable panel support bracket shown is an accessory. If required, specify quantity needed for interface with equipment panel. (See ordering information.) Install per instructions shown at right.

BRACKET INSTALLATION DIAGRAM



PANEL SUPPORT BRACKET INSTALLATION

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.)

ZIC 600 SERIES

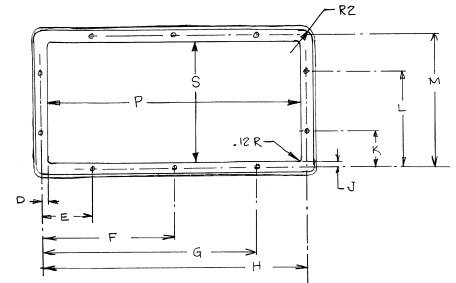
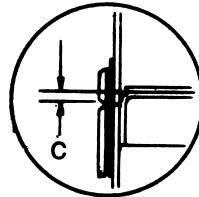
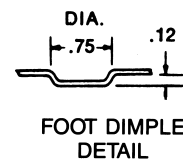
CASE NUMBER ^①	W	L	H1	H2	T	ALLOY	R1	R2	C	S	P	SIZE PANEL	WT. LBS.
ZIC 608	7.00	8.00	2.50	6.00	.06	1100-0	.31	.31	.25	5.38	6.38	6.50 x 7.50	3.3
ZIC 609	9.00	9.00	2.50	8.00	.06	6061-0	.50	.50	.25	7.38	7.38	8.50 x 8.50	4.7
ZIC 610	6.69	10.69	2.50	6.00	.09	6061-0	.50	.50	.22	5.00	9.00	6.19 x 10.19	4.8
ZIC 611	7.00	11.00	2.50	6.00	.06	6061-0	.50	.31	.34	5.38	9.38	6.31 x 10.31	4.3
ZIC 612	8.38	11.50	2.50	7.00	.06	6061-0	.50	.56	.25	6.75	9.87	7.88 x 11.00	4.9
ZIC 613	9.19	13.25	2.50	9.00	.09	6061-0	.56	.56	.28	7.50	11.56	8.69 x 12.63	8.2
ZIC 616	10.00	16.00	2.50	9.00	.09	6061-0	1.00	1.00	.28	8.31	14.31	9.50 x 15.50	9.8

Note: W, L and H are outside dimensions, R1, R2, P and S are inside dimensions. T = Thickness.
SEE PAGE 6 FOR VALULINE CASE SPECIFICATIONS.

Measurements shown in inches.

ZIC 600 SERIES ALUMINUM CARRYING CASES

This series features a spot-welded, pre-drilled panel flange, with threaded inserts installed to accept a full-sized, chemical film finished panel, included with the basic case.



Hole Pattern Dimensions

CASE NUMBER	D	E	F	G	H	J	K	L	M
ZIC 608	.28	2.00	—	4.94	6.94	.28	1.47	4.47	5.94
ZIC 609	.28	2.00	—	5.94	7.94	.28	2.00	5.94	7.94
ZIC 610	.29	2.36	—	7.23	9.59	.29	1.36	4.23	5.59
ZIC 611	.23	3.00	—	6.84	9.84	.23	1.75	4.09	5.84
ZIC 612	.28	3.00	—	7.44	10.44	.28	2.00	5.31	7.31
ZIC 613	.26	3.05	6.05	9.05	12.09	.26	2.00	6.03	8.03
ZIC 616	.29	3.45	7.45	11.45	14.91	.29	2.50	6.41	8.91

ORDERING INFORMATION

Standard Sizes:

Order by case number.

ZIC ^① _____
(see table above)

Special Sizes:

See **ZERO Manufacturing, Inc. Deep Drawn Products catalog** for additional sizes.

Order by Series Number and specify detail information.

Secondary operations available.

Please specify:

Width: _____

Length: _____

Cover Height (H1): _____

Case Height (H2): _____

INSTRUMENT CASES

ZIC 400 SERIES



CASE NUMBER	W	L	D	R ₁	R ₂	WT. LBS.
ZIC 407	4.00	7.00	5.00	.31	.31	1.3
ZIC 408	4.50	7.75	7.00	.25	.25	1.8
ZIC 409	6.00	9.00	5.00	.31	.31	2.1
ZIC 411	7.00	11.00	7.00	.50	.31	2.9

Available in four sizes – off-the-shelf

Measurements shown in inches.

- OFF-SHELF AVAILABILITY
- NO TOOLING CHARGE

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

The seamless deep drawn body provides protection even under rugged conditions. An 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 .063" aluminum.

ZIC 411: 6061-0 .063" aluminum.

Handle: Cast aluminum – Brushed finish.

Feet: Rubber

Finish: Medium blue texture.

ORDERING INFORMATION

Standard Sizes:

Order by case number.

Special Sizes:

See **ZERO Manufacturing, Inc. Deep Drawn Products catalog** for additional sizes.

Order by Series Number and specify detail information.

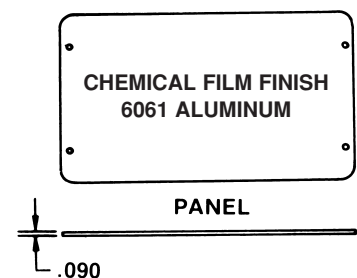
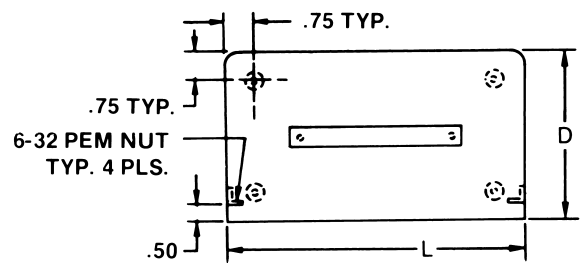
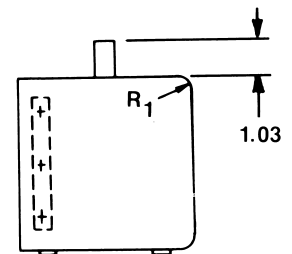
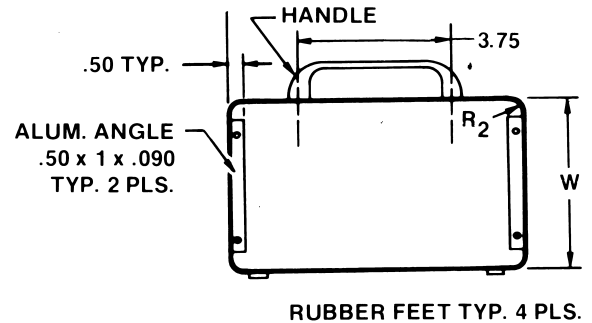
Secondary operations available.

Please specify:

Width: _____

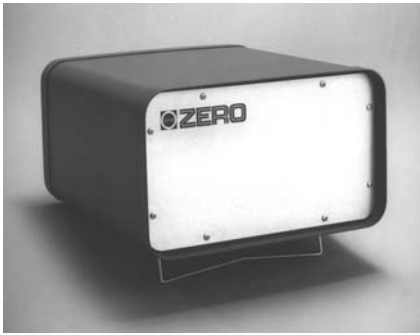
Length: _____

Depth: _____



VALULINE III INSTRUMENT CASE

TABULATION CHART



CASE NO.	A	B	C	D
ZP20860-1	5.22	8.43	10.00	8.00
ZP20860-3	5.22	16.88	13.00	11.00
ZP20860-5	6.97	8.43	10.00	8.00
ZP20860-7	6.97	16.88	13.00	11.00
ZP20860-9	8.72	16.88	13.00	11.00
ZP20860-11	10.47	16.88	17.00	15.00

Measurements shown in inches.

A non-stock case available in six standard sizes with and without "EMI" shielding, this line of aluminum desk top enclosure features front and rear access.

The EMI models are supplied with EMI gaskets in a specially designed groove in the front and rear bezels of the enclosure. The bottom area of the unit has a perforated vent pattern located near the front.

Other standard features include side handles, rubber feet and front and rear panels.

Optional accessories also available:

- Tilt Stand
- Chassis Plate
- Fan in Rear Panel (30 CFM on 5-1/4" high model and 80 CFM on the 7", 8-3/4" and 10-1/2" high models)

SPECIFICATIONS

Material: .090 Aluminum Alloy (center section) and Extruded Aluminum (front and rear bezels).

Handles: Stainless Steel-Recessed Grip

Front & Rear Panels: .125 Aluminum Alloy

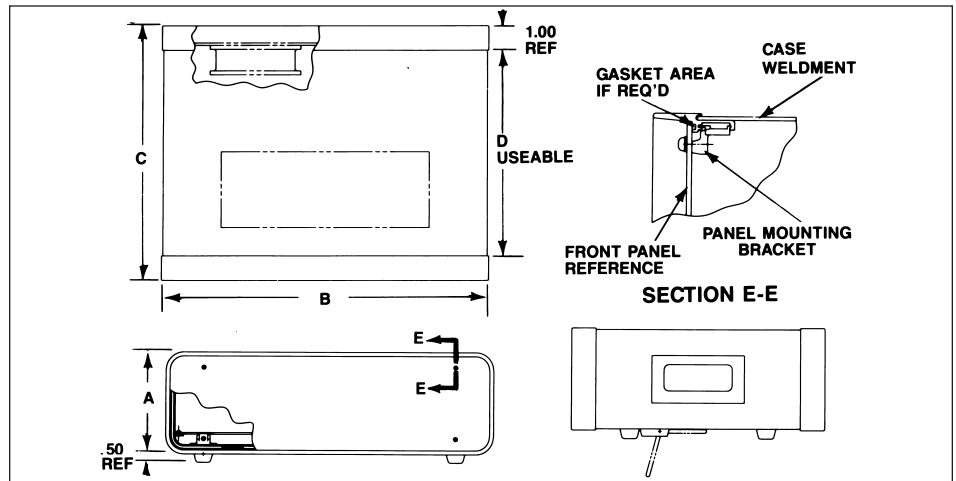
Feet: Four (4) - Black Rubber

Chassis Plate: (Optional) .090 Aluminum Alloy.

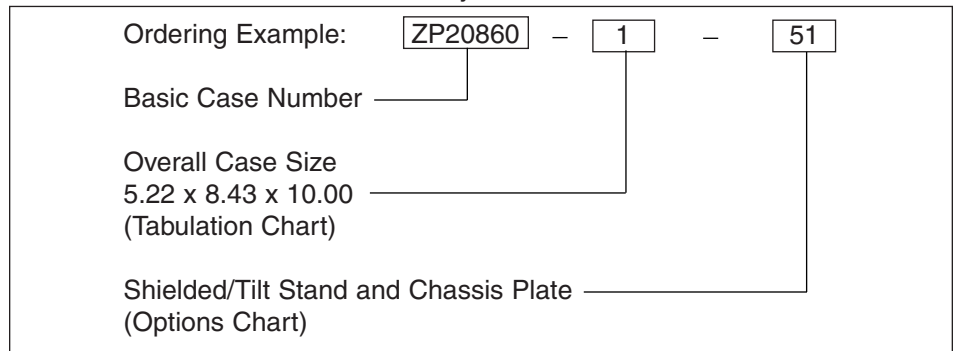
Tilt Stand: (Optional) Steel - Chrome Plated

EMI Gasket: (Optional) Knitted Wire Mesh.

Finish: Exterior - Light Blue Textured. Interior - Light Blue Textured. Panels (Front, Rear & Chassis Plate) - Chemical Film.



ORDERING INFORMATION: Order by case number, size.



OPTIONS CHART

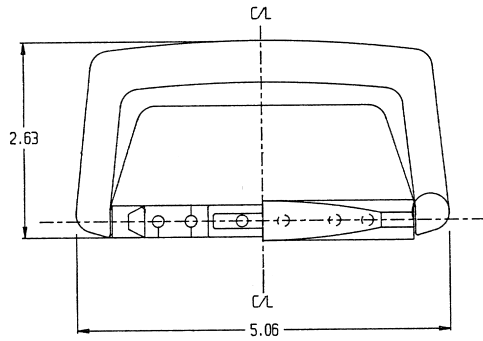
OPTION DESCRIPTION	NON SHIELDED	SHIELDED
NO OPTIONS	-21	-41
TILT STAND	-23	-43
REAR FAN PANEL	-25	-45
CHASSIS PLATE	-27	-47
TILT STAND AND FAN PANEL	-29	-49
TILT STAND AND CHASSIS PLATE	-31	-51
FAN PANEL AND CHASSIS PLATE	-33	-53
TILT STAND, FAN PANEL AND CHASSIS PLATE	-35	-55

CENTURION® VALULINE MODIFIED INSTRUMENT CASES

Standard Hardware Options

HANDLES ZP20085

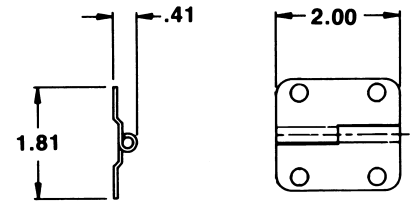
Used on ZIC600, ZIP800,
ZC5000 and ZC7000 Series.



HINGE

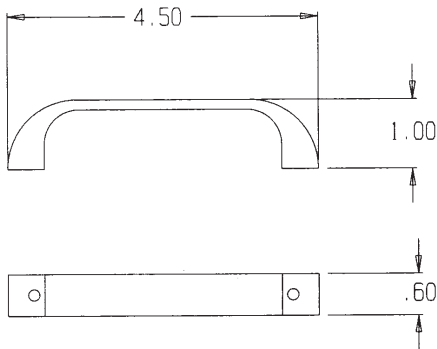
- ZP20282-1 Separable (long pin)
- ZP20282-2 Separable (short pin)
- ZP20282-3 Non Separable

MATERIAL: Stainless steel, nickel plated.
WEIGHT: 0.104 lbs.

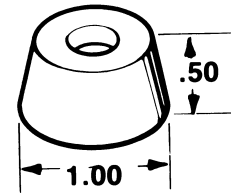


5207-28A

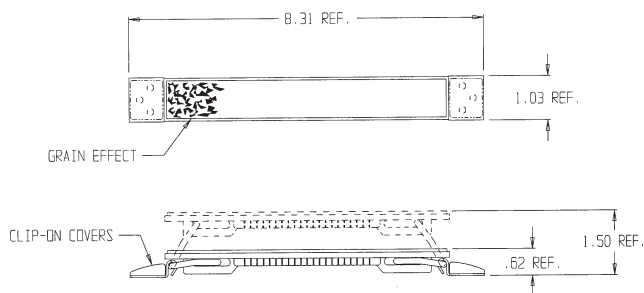
Used on ZIC400 Series
(instrument cases)



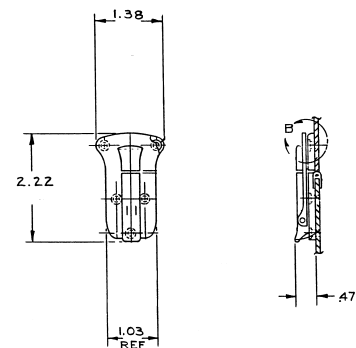
FEET RUBBER FOOT ZSP7-718



ZSP3-309 (optional)



LATCHES ZSP2-220-1



CENTURION® ELITE STANDARD ALUMINUM CASES

TOP-OF-THE-LINE QUALITY AND STYLE

High strength, light weight and 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 has been proven in actual use around the world. They are dust and weather resistant, and every case is strong enough to stand on, thanks to specially heat-treated shells. Despite this, even the largest case weighs only 17 pounds.

OUTSTANDING PERFORMANCE

These cases offer the ultimate in appearance, reliability and versatility. Positive-locking latches assure secure closing, while complementing the clean styling of each case.

A fully-gasketed tongue-and-groove closure extrusion, mechanically formed and compressed onto the shells, offers better sealing and case integrity while permitting installation of adjustable panel support brackets (optional) at significant savings over other methods of attaching angles for panel-mounted equipment. Blank panels are available for all cases by special order.



Series	Special Feature
100X (pg. 16-17)	Standard Case.
200X (pg. 18-19)	EMI/environmental protection.
700X (pg. 20)	Separable hinges.
ZEROLLER (pg. 15)	Two wheeled system.

SPECIFICATIONS FOR CENTURION® ELITE CASES

Case Shell	Deep drawn aluminum alloy, heat treated.	Handle	Gray injection molded acrylic based multi-polymers.
Closure	Interlocking tongue and groove extrusion of 6063-T5 aluminum alloy, mechanically formed and compressed to case shell.		Maximum weight 60 lbs.
	Lower closure accepts panel support brackets. 100X, 200X and 700X only.	Lock	Combination lock. 100X and 700X only.
Seal	Elastomeric neoprene gasketed seal.	Feet	Aluminum - riveted to case.
Latches	100X & 700X: Two positive locking bail type; chrome plated, 200X: has one keyed latch, one bail type.	Nameplate	ZERO nameplate mounted on upper case shell above lock.
Hinge	100X: Piano type (continuous) aluminum with stainless steel pin riveted to case. 200X & 700X: Two separable hinge assemblies, nickel plated stainless steel riveted to case.	Silver Finish	Satin sulfuric acid anodized on all exposed surfaces.
		Black Finish	Black powder paint interior and exterior. 100X and 700X Series only.
		ZEROLLER Wheeled System	See Page 15.
		Tolerances	±.06"



The Wheeled Industrial Case

Tired of carrying that case filled with instruments, tools or sales samples? The answer is ZEROLLER™.

It 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!

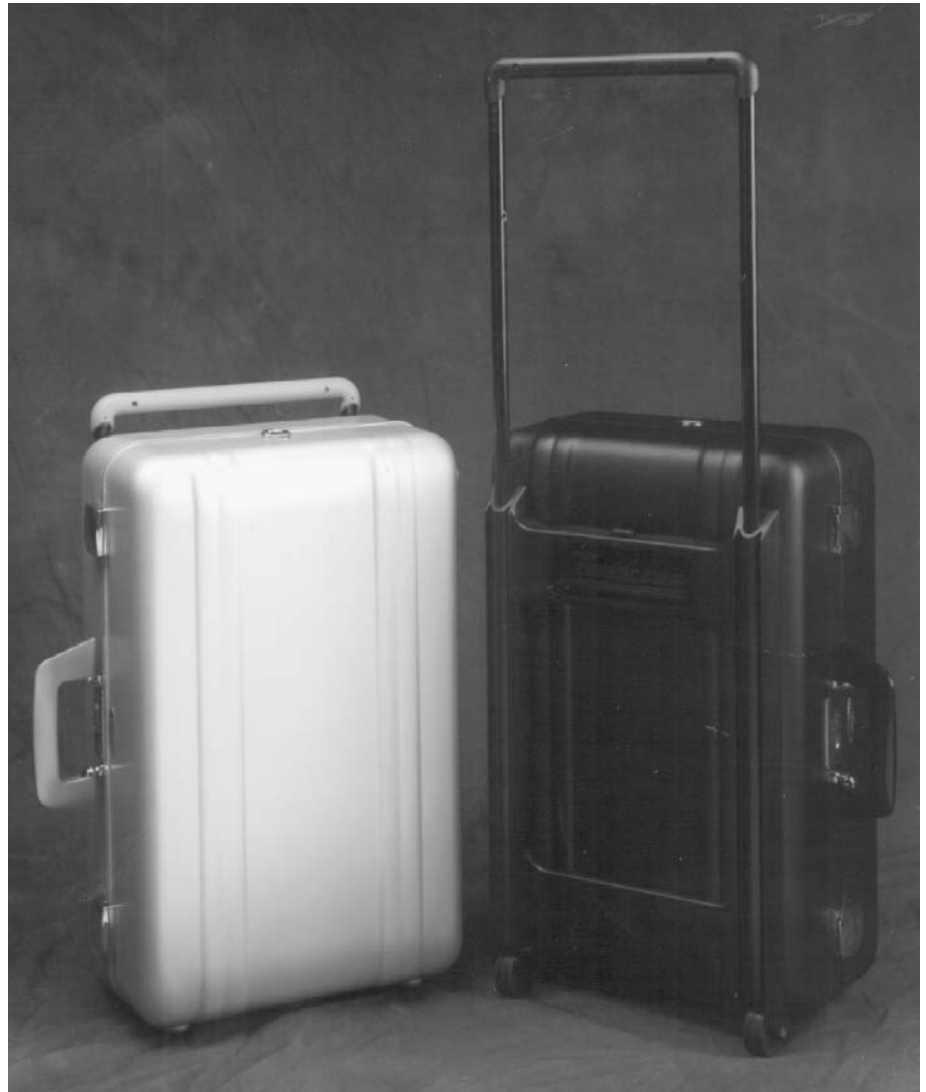
-For case specifications see page 14.

The ZEROLLER SYSTEM

Handle: Pultruded fiberglass designed to deflect several hundred pounds of force and return to the original position.

Wheels: Rubber with ball bearings.

Housing: Constructed of high-impact resistant plastics.



INTERIOR OPTIONS

- Layered foam (order using part number ZP21745-1 for 105ZRX or ZP21745-3 for 107ZRX).

- Divider system (call for availability).

CASE NUMBER	A OUTSIDE B		INSIDE HEIGHT	H1 UPPER SHELL HEIGHT, I.D.	H2 LOWER SHELL HEIGHT, I.D.	MATERIAL THICKNESS	APPROX. NET WEIGHT LBS.
	WIDTH	LENGTH					
°105ZRX- SI ON	13.00	21.00	6.50	2.75	3.75	.040	8.7
107ZRX- SI ON	13.00	21.00	7.50	3.75	3.75	.040	8.9

°Case number 105ZRX is a non-stock item. Price and delivery available by calling the Stock Sales Department @ 1-800-500-ZERO (9376)

100X SERIES

Fixed Hinges

THE 100X SERIES

This series is available in 26 standard sizes. Constructed of durable aluminum alloy, choose from either a clear silver anodized or a textured black powder paint finish.

Each style comes equipped with a triple digit combination lock, and fixed hinge. Just add your equipment and go.

For complete information on dimensions and weights, see page 17.

OPTIONAL ACCESSORIES

Foam Cushion Sets - Choose from a blank layered cushion set or a diced layered cushion set (available for case numbers 100X, 102X, 103X, 105x, 106X, 110X only). Each is made of a gray two pound density polyurethane foam. See page 26.

Panel - See page 17 for panel dimensions and drawing specifications.

Brackets - See page 20 for drawing, part number and installation instructions.

Caster Kit - available only on case numbers 109X, 110X and 129X.



Case shown with optional panel support brackets.

ORDERING INFORMATION

Order by part number for each item (case, panel and/or brackets)

Case _____ X- _____ Color/Finish-Options =SI (Silver/clear anodized)

Ordering example: 101X-SI ON (Onyx/black powder paint)

If panel needed: ZP108000- _____ (see part numbers in Table 2, page 19)

If brackets needed: ZP20653-1 (specify quantity)

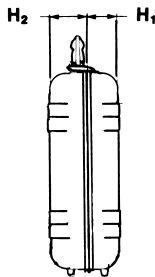
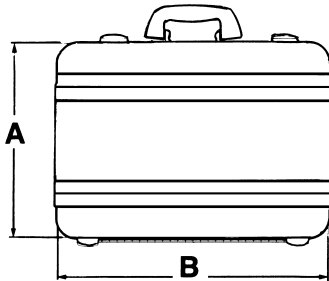
Note: See page 26 for ordering foam cushion sets.

100X SERIES

Fixed Hinges

TABLE 1: 100X SERIES (standard configuration) ZERO Centurion® Elite Cases

BASIC SHELL DIMENSIONS AND CASE SPECIFICATIONS



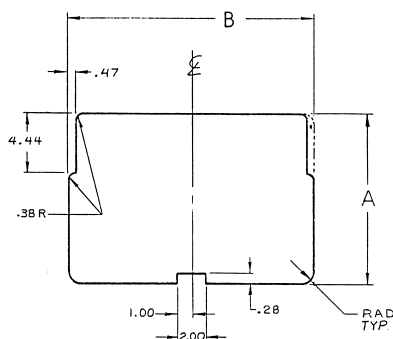
CASE NUMBER	OUTSIDE		INSIDE HEIGHT	H1* UPPER SHELL HEIGHT, I.D.	H2 LOWER SHELL HEIGHT, I.D.	MATERIAL THICKNESS	APPROX. NET WEIGHT LBS.
	WIDTH	LENGTH					
*132X-SI ON ^o	8.50	19.75	14.49	1.20	13.29	.051	8.1
100X-SI ON	9.00	12.00	5.00	2.00	3.00	.040	3.3
101X-SI ON	9.00	16.00	7.75	2.50	5.25	.051	5.0
116X-SI ON	9.00	16.00	14.50	2.50	12.00	.051	7.2
*128X-SI ON ^o	10.00	36.00	4.00	2.00	2.00	.040	7.0
*130X-SI ON ^o	10.00	48.50	4.00	2.00	2.00	.040	9.2
*138X-SI ON	11.25	16.50	3.25	1.50	1.75	.040	4.4
*140X-SI ON ^o	12.00	32.50	4.50	1.50	3.00	.040	8.0
102X-SI ON	13.00	18.00	4.50	2.00	2.50	.040	5.0
103X-SI ON	13.00	18.00	6.00	2.50	3.50	.040	5.4
*104X-SI ON	13.00	18.00	3.50	1.50	2.00	.040	5.0
105X-SI ON	13.00	21.00	6.50	2.75	3.75	.040	6.1
107X-SI ON	13.00	21.00	7.50	3.75	3.75	.040	6.3
*134X-SI ON ^o	13.00	26.50	7.00	3.00	4.00	.051	7.2
*136X-SI ON ^o	13.58	18.58	7.00	3.00	4.00	.040	5.7
*122X-SI ON ^o	14.12	49.37	4.44	2.00	2.44	.040	16.8
114X-SI ON ^o	17.00	18.00	12.00	2.00	10.00	.040	8.6
106X-SI ON	17.00	21.00	7.50	3.00	4.50	.051	8.4
111X-SI ON ^o	18.00	24.00	7.00	3.00	4.00	.051	9.5
112X-SI ON ^o	18.00	24.00	8.00	3.50	4.50	.051	10.0
113X-SI ON ^o	18.00	24.00	8.50	4.00	4.50	.051	10.0
109X-SI ON ^o	18.00	26.00	8.44	3.75	4.69	.051	10.7
110X-SI ON ^o	18.00	26.00	8.94	4.25	4.69	.051	10.8
*142X-ON ^{oo}	18.00	26.00	10.25	3.25	7.00	.063	14.3
*126X-SI ON ^o	19.10	50.35	6.25	2.25	4.00	.051	17.3
129X-SI ON	20.00	29.00	9.82	4.91	4.91	.051	13.8

Measurements shown in inches.

*Bead configuration differs from illustration shown, contact ZERO for detailed information. NOTE: Width and length are outside dimensions, height is an inside dimension. Lower shell of Model 114X, 116X and 132X complete with spot welded wrap-around riser section. IMPORTANT: If you are planning to install a panel in your case, please check dimensioning of closure extrusions illustrated above.

^oCase numbers 109X, 110X, 111X, 112X, 113X, 114X, 122X, 126X, 128X, 130X, 132X, 134X, 136X and 140X in Onyx are non-stock items. Price and delivery available upon request. ^{oo} 142X available in Onyx only, non-stock.

TABLE 2: Standard 100X Series Instrument Panels (.090" 6061-T6 Aluminum Alloy)



Case Number	A	B	Radius	Part Number
100X	8.22	11.22	.62	ZP108000-100
101X	8.20	15.20	.84	ZP108000-101
102X	12.22	17.22	.84	ZP108000-102
103X	12.22	17.22	.84	ZP108000-103
104X	12.22	17.22	.84	ZP108000-104
105X / 107X	12.22	20.22	.84	ZP108000-105
106X	16.20	20.20	.84	ZP108000-106
109X	17.20	25.20	.84	ZP108000-109
110X	17.20	25.20	.84	ZP108000-110
111X	17.20	23.20	.84	ZP108000-111
112X	17.20	23.20	.84	ZP108000-112
113X	17.20	23.20	.84	ZP108000-113
114X	16.22	17.22	.84	ZP108000-114
116X	8.20	15.20	.84	ZP108000-116
122X	13.34	48.59	.84	ZP108000-122
126X	18.30	49.55	1.59	ZP108000-126
128X	9.22	35.22	.84	ZP108000-128
129X	19.20	28.20	.84	ZP108000-129
130X	9.22	47.72	.84	ZP108000-130
132X	7.70	18.95	.84	ZP108000-132
134X	12.20	25.70	.84	ZP108000-134
136X	12.80	17.80	.84	ZP108000-136
138X	10.47	15.72	.84	ZP108000-138
140X	11.22	31.72	.84	ZP108000-140
142X	17.17	25.17	.59	ZP108000-142

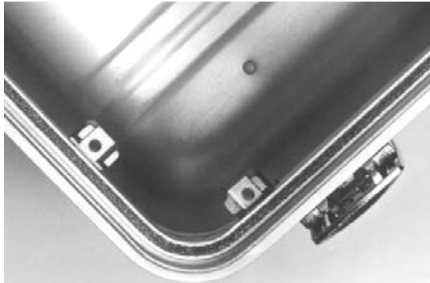
FOR BRACKET DRAWING, PART NUMBER AND INSTALLATION INSTRUCTIONS SEE PAGE 20.

200X SERIES

EMI/ENVIRONMENTAL PROTECTION

ZERO Manufacturing, Inc. takes a significant step forward with this line of EMI shielded carrying cases. Designed to provide a minimum of 45 dB protection from 30MHz to 1GHz, these cases offer the case specifier a secure, yet economical solution to shielding problems often encountered in portable applications.

Available in 19 standard sizes, the Centurion® 200X Series is an ideal choice for a variety of applications. The 200X Series cases are supplied with separable hinges.



200X Series Case shown with optional panel support brackets and EMI gasket.

Optional Environmental Seal

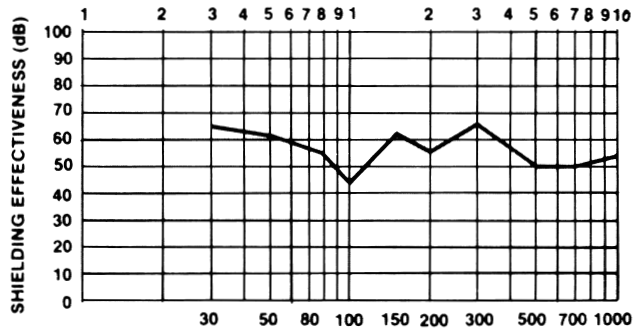
ZERO Manufacturing, Inc. design engineers have developed a special, environmentally sealed mounting panel which utilizes the same closure system as that of the EMI version. This permits operation of an open case in field portable situations without damage to internal components and circuits.



200X Series Case shown with optional panel support brackets installed.

CERTIFIED SHIELDING EFFECTIVENESS BY INDEPENDENT TESTING

ZERO Manufacturing, Inc. emissions testing. Every 200X carrying case provides a minimum of 45dB effectiveness to 1GHz. For additional information, please contact your nearest representative.



ORDERING INFORMATION

200X

Order by part number for each item (case, panel and/or brackets)

Case _____ X- _____ (Gasket - Options = W (weather gasket)
 Ordering example: 201X-W = E (EMI gasket)

If panel needed: ZP20568- _____ (see Table 2 on page 19 for correct number)

Ordering example: ZP20568-3

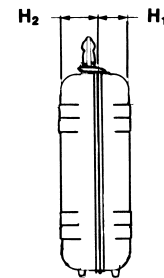
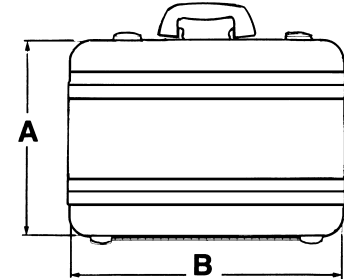
If brackets needed: ZP20654-1 (specify quantity)

200X SERIES EMI/ENVIRONMENTAL PROTECTION

CASE NUMBER	A OUTSIDE B		INSIDE HEIGHT	H1 UPPER SHELL HEIGHT, I.D.	H2 LOWER SHELL HEIGHT, I.D.	MATERIAL THICKNESS	APPROX. NET WEIGHT LBS.
	WIDTH	LENGTH					
200X	9.00	12.00	5.00	2.00	3.00	.040	3.3
201X	9.00	16.00	7.75	2.50	5.25	.051	5.0
° 240X	12.00	32.50	4.50	1.50	3.00	.040	8.0
202X	13.00	18.00	4.50	2.00	2.50	.040	5.0
203X	13.00	18.00	6.00	2.50	3.50	.040	5.4
205X	13.00	21.00	6.50	2.75	3.75	.040	6.1
207X	13.00	21.00	7.50	3.75	3.75	.040	6.3
° 234X	13.00	26.50	7.00	3.00	4.00	.051	7.2
° 236X	13.58	18.58	7.00	3.00	4.00	.040	5.7
206X	17.00	21.00	7.50	3.00	4.50	.051	8.4
° 211X	18.00	24.00	7.00	3.00	4.00	.051	9.5
° 212X	18.00	24.00	8.00	3.50	4.50	.051	10.0
° 213X	18.00	24.00	8.50	4.00	4.50	.051	10.0
° 209X	18.00	26.00	8.44	3.75	4.69	.051	10.7
° 210X	18.00	26.00	8.94	4.25	4.69	.051	10.8
229X	20.00	29.00	9.82	4.91	4.69	.051	13.8

See page 14 for case specifications.

BASIC SHELL DIMENSIONS AND CASE SPECIFICATIONS



Measurements shown in inches.

NOTE: Width and length are outside dimensions, height is an inside dimension. IMPORTANT: If you are planning to install a panel in your case, please check dimensioning of closure extrusions (see Section AA) for proper fit.

°Case numbers 209X, 210X, 211X, 212X, 213X, 234X, 236X and 240X are non-stock items. Price and delivery available upon request.

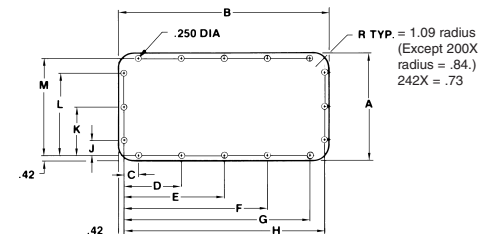


Table 2: Standard 200X Series Instrument Panels (.125" 6061-T6 Aluminum Alloy. Furnished with a chemical film finish.)

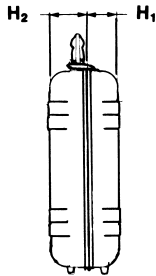
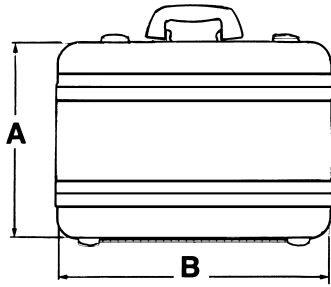
CASE NUMBER	PART NUMBER	A	B	C	D	E	F	G	H	J	K	L	M	NO. OF HOLES
200X	- 1	8.520	11.520	2.340	-	-	-	8.340	10.680	1.580	-	6.080	7.660	8
201X	- 3	8.500	15.500	3.580	-	-	-	11.080	14.660	1.580	-	6.080	7.660	8
202X, 203X	- 5	12.520	17.520	3.590	-	8.340	-	13.090	16.680	1.840	-	9.840	11.680	10
205X, 207X	- 7	12.520	20.520	3.715	-	9.840	-	15.965	19.680	1.840	-	9.840	11.680	10
206X	- 9	16.500	20.500	3.715	-	9.840	-	15.965	19.680	1.830	7.830	13.830	15.660	12
209X, 210X	- 11	17.500	25.500	1.580	8.705	-	15.955	23.080	24.660	1.580	8.330	15.080	16.660	14
211X, 212X, 213X	- 13	17.500	23.500	1.580	8.080	-	14.580	21.080	22.660	1.580	8.330	15.080	16.660	14
228X	- 17	9.520	35.520	1.590	9.465	17.340	25.215	33.090	34.680	1.590	-	7.090	8.680	14
229X	- 19	19.500	28.500	1.580	7.705	13.830	19.355	26.080	27.660	1.580	9.330	17.080	18.660	16
234X	- 29	12.500	26.000	1.625	8.928	-	16.231	23.535	25.160	1.830	-	9.830	11.660	12
236X	- 31	13.100	18.100	3.590	-	8.629	-	13.668	17.258	1.838	-	10.424	12.258	10
240X	- 33	11.520	32.020	1.590	8.840	15.590	22.340	29.590	31.180	1.715	-	8.965	10.680	14
242X	- 35	17.460	25.460	1.560	8.726	-	15.896	23.060	24.620	1.580	8.310	15.040	16.620	14

FOR BRACKET DRAWING, PART NUMBER AND INSTALLATION INSTRUCTIONS SEE PAGE 20

700X SERIES

Separable Hinges

BASIC SHELL DIMENSIONS AND CASE SPECIFICATIONS



MODEL		OUTSIDE		INSIDE HEIGHT	H1 UPPER SHELL HEIGHT, I.D.	H2 LOWER SHELL HEIGHT, I.D.	MATERIAL THICKNESS	APPROX. NET WEIGHT LBS.
		WIDTH	LENGTH					
700X-	SI	9.00	12.00	5.00	2.00	3.00	.040	3.3
701X-	SI	9.00	16.00	7.75	2.50	5.25	.051	5.0
°716X-	SI	9.00	16.00	14.50	2.50	12.00	.051	7.2
738X-	SI	11.25	16.50	3.25	1.50	1.75	.040	4.4
°740X-	SI	12.00	32.50	4.50	1.50	3.00	.040	8.0
702X-	SI	13.00	18.00	4.50	2.00	2.50	.040	5.0
703X-	SI	13.00	18.00	6.00	2.50	3.50	.040	5.4
704X-	SI	13.00	18.00	3.00	1.50	2.00	.040	10.8
705X-	SI	13.00	21.00	6.50	2.75	3.75	.040	5.0
707X-	SI	13.00	21.00	7.50	3.75	3.75	.040	6.3
°734X-	SI	13.00	26.50	7.00	3.00	4.00	.051	7.2
°736X-	SI	13.58	18.58	7.00	3.00	4.00	.040	5.7
°714X-	SI	17.00	18.00	12.00	2.00	10.00	.040	8.6
706X-	SI	17.00	21.00	7.50	3.00	4.50	.051	8.4
°713X-	SI	18.00	24.00	8.50	4.00	4.50	.051	10.0
°709X-	SI	18.00	26.00	8.50	3.75	4.69	.051	10.7
°710X-	SI	18.00	26.00	9.00	4.25	4.69	.051	10.8
°°742X-	ON	18.00	26.00	10.25	3.25	7.00	.063	14.3
°729X-	SI	20.00	29.00	9.82	4.91	4.91	.051	13.8

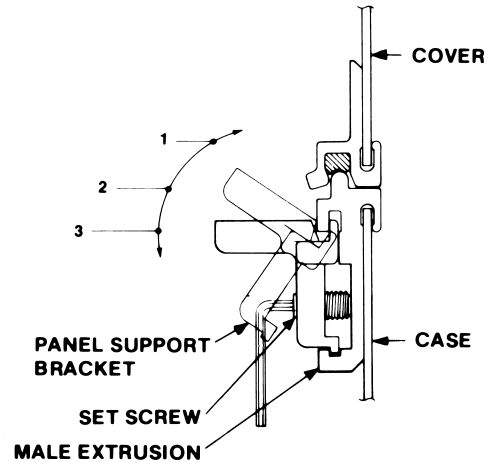
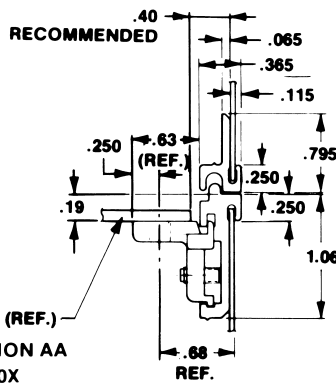
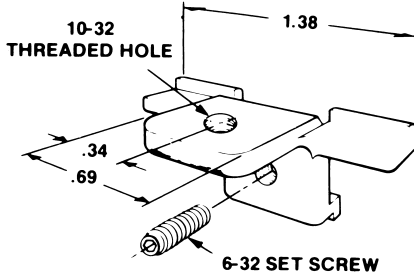
NOTE: Width and length are outside dimensions, height is an inside dimension. IMPORTANT: If you are planning to install a panel in your case, please check dimensioning of closure extrusions illustrated above.
 °Case numbers 713X, 714X, 716X, 729X, 734X, 736X, 738X and 740X are non-stock items. Price and delivery available upon request. °° 742X available in Onyx only, non-stock.

For Standard 700X Series instrument panels use Table 2 on page 17.

* Onyx finish is available for all sizes. Call for price and delivery. *

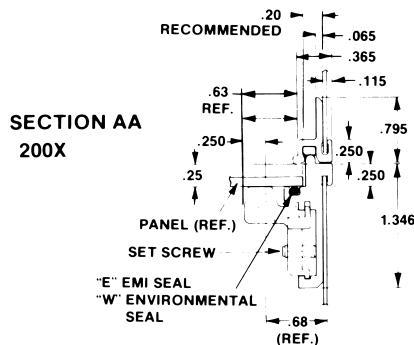
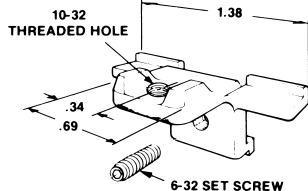
BRACKET FOR 100X AND 700X SERIES

PANEL SUPPORT BRACKET ZP20653 (OPTIONAL)



BRACKET FOR 200X SERIES

PANEL SUPPORT BRACKET ZP20654 (OPTIONAL)



- BRACKET INSTALLATION INSTRUCTIONS**
1. Insert bracket into extrusion as shown.
 2. Rotate downward, as shown, until support bracket is seated.
 3. Slide bracket laterally as required to align bracket with panel.
 4. Caution: Do not over tighten.

CENTURION® ELITE MODIFIED ALUMINUM CASES

Fast, Efficient Turnaround on Simple Modifications

ZERO Manufacturing, Inc. has the internal capability for virtually any type of modification to standard cases. These include custom cutouts, special hole patterns, accessory brackets and related operations.

These services are available with longer lead times. Costs will vary depending on the complexity of the task. Please consult ZERO Manufacturing, Inc. for estimates or design assistance.

In addition, ZERO Manufacturing, Inc. offers a variety of standard hardware options, which are offered on the following pages as a fast and efficient means to customize your case.



KEYED LATCH OPTION—Available for use with standard case locks on the 100X Series for added security. The 200X Series is equipped with one keyed latch as standard equipment, additional latches may be added on special order.

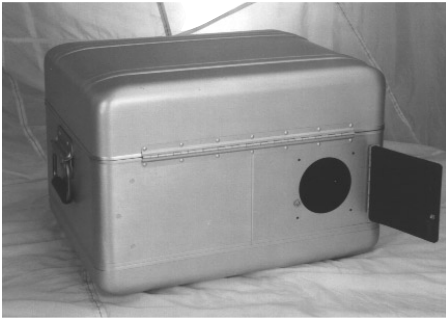


KEY-ALIKE LOCK OPTION — Specify a common key for your multiple case orders, using keyed alike locks. Combination locks require special set-up and longer lead times.

CENTURION® ELITE

MODIFIED ALUMINUM CASES

Fast, Efficient Turnaround on Simple Modifications



EXTERIOR OPTIONS

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

Basic Case Number _____

Upper Shell Height, Inside _____

Lower Shell Height, Inside _____

Finish Required _____

- Options: Anodize (specify color)
 Black Powder Paint (Std.)
 Custom Paint Color (specify FED-STD-595 color)
 Other (please specify).

Hinge _____

- Options: Fixed piano/continuous.
 Separable-two assemblies (See page 25).

Lock _____

- Options: Combination
 Keylock (assorted)
 Keylock (keyed alike)
 None

Latch _____

- Options: Std. Drawbolt (See page 14)
 Keyed Latch (See page 24)
 ZSP2-204 (See page 24)
 ZSP2-210 (See page 24)
 ZSP2-230 (See page 24)

Handle _____

- Options: Std. Tennite (See page 14)
 ZSP20136 (See page 24)
 ZSP20137 (See page 24)

Foot _____

- Options: Aluminum
 Rubber ZSP7-718 (See page 25)
 Casters HP25060 (See page 25)

INTERIOR OPTIONS

ZERO Manufacturing, Inc. 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 (see pages 26 and 27).



Substitutions, additions and deletions in latches, hinges, handles, strap loops, staybolts, locks, type of finish or color can be handled, without delay, from ZERO Manufacturing, Inc. extensive inventory of accessory items (see pages 24 and 25). And a complete range of secondary operations are readily available from ZERO Manufacturing, Inc. skilled, special fabrication departments. ZERO Manufacturing, Inc. will quote any such requirements on request, and will build your case to your prints, or offer complete design assistance.

INTERIOR REQUIREMENTS

Foam _____

- Options: Blank Layered Cushion Set (See page 26)
 Diced Layered Cushion Set (See page 26)
 Custom (provide drawings/material specifications)

Panel(s) _____

- Options: Std. Inner Lid Assembly (See page 25)
 Std. 100X Series Panel (See page 17)
 Std. 200X Series Panel (See page 19)
 Custom panel (please specify) - silkscreening is available - contact ZERO Manufacturing, Inc..

Panel Brackets _____

- Options: Std. 100X Series (ZP20653 - see page 20)
 100X Series (ZP9183 - not shown)
 Std. 200X Series (ZP20654 - see page 20)

Gasket _____

- Options: Std. Neoprene (See page 14)
 EMI Shielded (E) (See page 18)
 Weather/Environmental (W) (See page 18)

Additional requirements _____

CENTURION® ELITE MODIFIED ALUMINUM CASES

TABLE 3 Basic Shelf-half Sizes and Dimensions. Refer to drawings below.

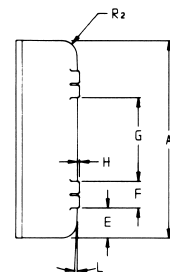
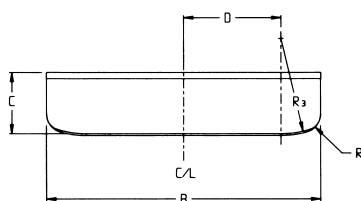
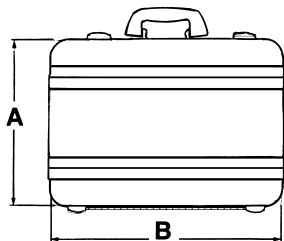
Measurements shown in inches.

CASE NUMBER		A B OUTSIDE		C INSIDE**												MAT'L THICK-NESS
DIE MODEL	DIE MODEL	WIDTH ±.06	LENGTH ±.06	MIN	MAX	D	E	F	G	H	R1	R2	R3	R4	L	
* 132	232	8.50	19.75	1.20	2.75	-	-	-	-	-	1.25	0.50	-	.50	2.5°	.051
100	200	9.00	12.00	2.00	2.91	3.50	1.75	1.34	2.81	.09	1.00	1.00	6.00	1.00	2.5°	.040
101	201	9.00	16.00	2.00	5.16	5.50	1.75	1.34	2.81	.09	1.25	1.00	6.00	1.00	2.5°	.051
* 128	-	10.00	36.00	2.00	2.91	-	2.25	1.50	2.50	.12	1.25	1.00	-	1.00	-	.040
* 130	-	10.00	48.50	2.00	1.91	-	2.25	1.50	2.50	.12	1.25	1.00	-	1.00	-	.040
* 138	-	11.25	16.50	1.50	2.00	-	1.75	1.44	4.88	.12	1.25	.50	-	.50	-	.040
* 140	240	12.00	32.50	1.50	2.91	-	2.25	1.44	4.63	.12	1.25	.50	-	.50	-	.040
103	203	13.00	18.00	2.00	5.50	6.40	2.00	1.75	5.12	.12	1.25	1.00	6.25	1.00	2.5°	.040
* 104	-	13.00	18.00	1.50	1.91	-	2.25	1.50	5.50	.09	1.25	.50	-	.50	-	.040
105	205	13.00	21.00	2.00	3.66	7.90	2.00	2.00	5.00	.12	1.25	1.00	6.25	1.00	2.5°	.040
* 134	234	13.00	26.50	2.00	3.91	-	2.25	1.50	5.50	.12	1.25	.75	-	.75	-	.051
* 136	236	13.58	18.58	2.00	4.29	-	2.25	1.50	6.08	.12	1.25	.50	-	.50	-	.040
* 122	-	14.12	49.37	1.87	2.35	22.09	2.18	1.62	6.50	.12	1.25	1.00	6.25	1.00	2.5°	.040
114	214	17.00	18.00	2.00	3.96	6.40	2.68	2.25	7.14	.12	1.25	1.00	6.25	1.00	2.5°	.040
106	206	17.00	21.00	2.25	4.41	7.46	2.68	2.25	7.13	.12	1.25	1.25	6.50	1.25	2.5°	.051
112	212	18.00	24.00	2.25	4.41	8.87	2.93	2.25	7.64	.12	1.25	1.25	6.50	1.25	2.5°	.051
109	209	18.00	26.00	2.37	4.60	9.81	2.93	2.25	7.64	.12	1.25	1.25	6.50	1.25	2.5°	.051
* 142	-	18.00	26.00	2.00	6.91	-	3.15	1.63	8.43	.12	1.00	1.00	-	1.00	-	.063
* 126	-	19.10	50.35	2.00	3.91	22.53	2.93	2.00	9.12	.12	2.00	1.00	6.25	1.00	2.5°	.051
129	229	20.00	29.00	2.25	4.82	11.31	2.94	2.25	9.62	.12	1.25	1.25	6.50	1.25	2.5°	.051

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

**2" minimum H2 depth with standard hardware.

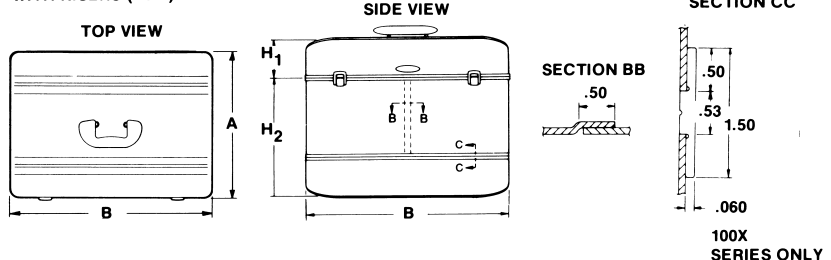
BASIC SHELL DIMENSIONS AND CASE SPECIFICATIONS



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, in .25" increments, may be ordered within the limits shown. If additional height is required, a riser section can be added to the basic shells. ZERO Manufacturing, Inc. reserves the right to provide a riser section in either configuration (Section CC).

EXTRA HEIGHT CASES WITH RISERS (TYP.)



Extra height is the combination of extrusion and sheet metal wrap. (Splice located at maximum draw depth)

Silver Finish: Risered models (122X, 128X, 129X and 130X) are fine sanded and sulfuric acid anodized on all exposed surfaces.

CENTURION® ELITE

MODIFIED ALUMINUM CASES

Standard Hardware Options

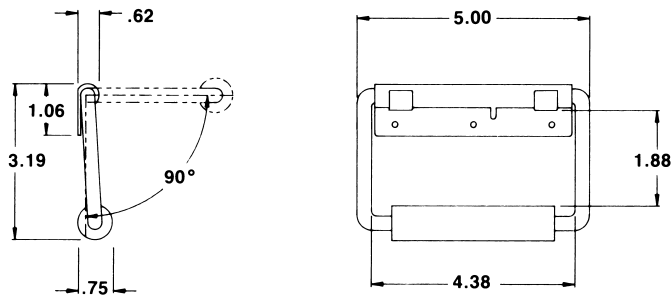
HANDLES

ZP 20136

MATERIAL: Steel plate and bail. Grip, non-rigid synthetic resin composition.

WEIGHT: 0.43 lbs.

PERFORMANCE DATA: Design load, 100 lbs. Bail stops at 90° open position. Spring returns bail to position shown.



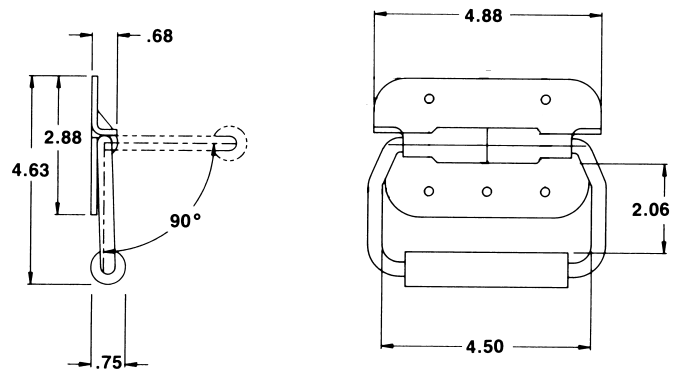
ZP 20137-1 (without holes)

ZP 20137-2 (with holes)

MATERIAL: Aluminum plate, steel bail with rubber grip.

WEIGHT: 0.50 lbs.

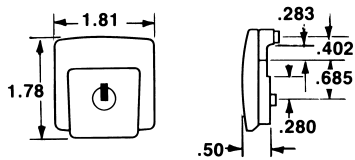
PERFORMANCE DATA: Spring loaded, rattle proof, carries at 90° and is designed to lift 150 lbs.



LATCHES

HP25051-1

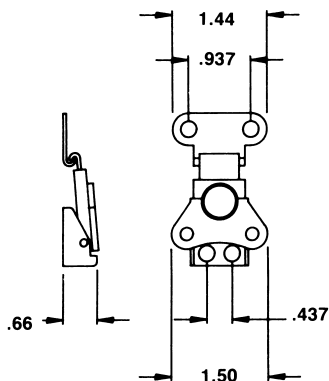
Keyed Latch



ZSP2-210-1

MATERIAL: Steel

PERFORMANCE DATA: Preloaded to 90 lbs. Withstands 300 lbs. pull

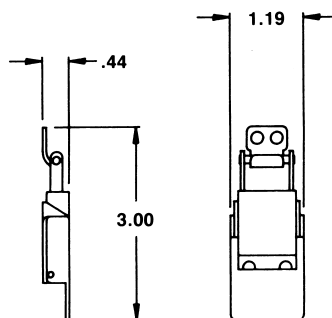


ZSP2-204-1

MATERIAL: Steel

WEIGHT: .10 lbs.

PERFORMANCE DATA: Preloaded to 70 lbs. Withstands 400 lbs. pull

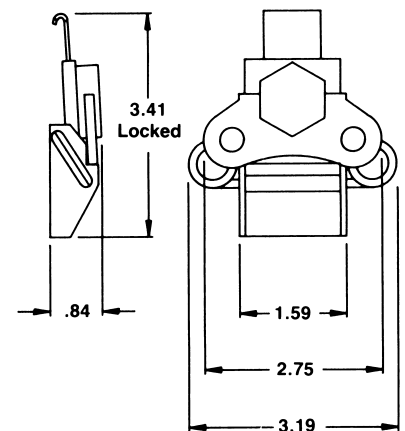


ZSP2-230-1

MATERIAL: Steel

WEIGHT: .312 lbs. (body only)

PERFORMANCE DATA: Cam action, positive locking.



CENTURION® ELITE MODIFIED ALUMINUM CASES

Standard Hardware Options

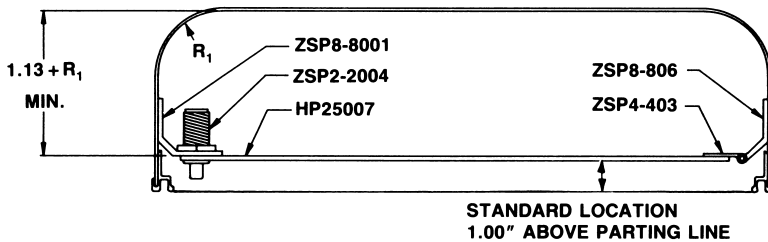
INNER LID ASSEMBLY

HP 25013

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. Minimum stowage height is $R1+1.13$ ". Minimum H1 (height of cover) when inner lid assembly is required is $2.19"+R1$ +stock thickness.



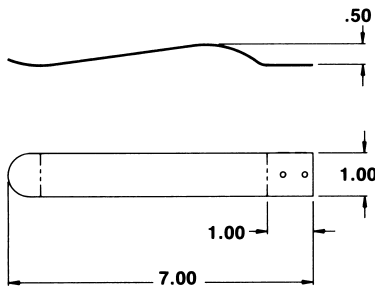
CARD CLIPS

ZSP 9-902

MATERIAL: Spring tempered steel.

WEIGHT: .09 lbs.

PERFORMANCE DATA: 0.27 lbs. clamping force when deflected 0.06 inches.

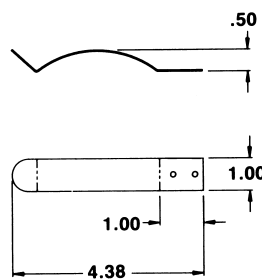


ZSP 9-903

MATERIAL: Spring tempered steel.

WEIGHT: 0.04 lbs.

PERFORMANCE DATA: 0.27 lbs. clamping force when deflected 0.06 inches.



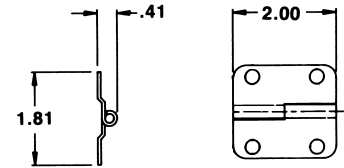
HINGE

ZP20282 Separable

ZP20282-3 Non-Separable

MATERIAL: Stainless steel, nickel plated.

WEIGHT: 0.104 lbs.



FEET

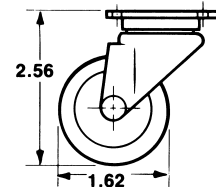
HEAVY DUTY CASTER

HP25060

MATERIAL: Zinc plated steel, cushion polyurethane rubber wheel.

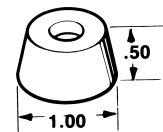
WEIGHT: 0.375 lbs.

PERFORMANCE: 60 lbs. capacity ea.



RUBBER FOOT

ZSP7-718



CENTURION® ELITE STANDARD FOAM CUSHION SETS

Shock and Vibration Protection

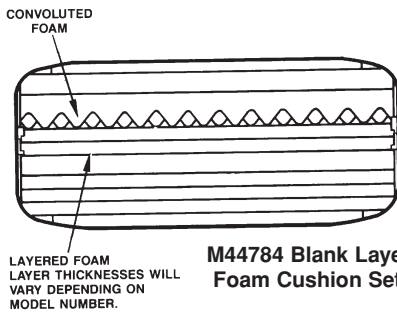


Blank layered foam cushion sets are available for every Centurion® Elite carrying case.

Diced layered foam packs and divider systems 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



M44784 Blank Layered Foam Cushion Set

Get Snug Fit

Protect your most delicate equipment by specifying M44784 foam pack, made of gray 2 lb. density, polyurethane foam, layered bottom and convoluted top. Standard foam packs are available from stock to fit all standard Centurion® Elite cases.

ORDERING INFORMATION:

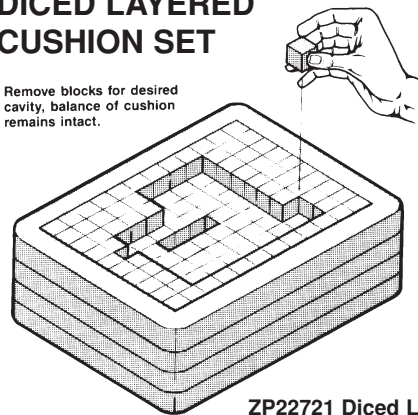
Blank Layered Cushion Set — **M44784** —

Case Model Number _____

SAMPLE PART NUMBER
M44784-101

DICED LAYERED CUSHION SET

Remove blocks for desired cavity, balance of cushion remains intact.



ZP22721 Diced Layered Foam Cushion Set

Foam pack made of gray polyurethane foam 2 lb. 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 (**only available for case numbers: 100, 102, 103, 105, 106, 110.**).

ORDERING INFORMATION:

Diced Layered Cushion Set — **ZP22721** —

Case Model Number _____

SAMPLE PART NUMBER
ZP22721-101

CENTURION® ELITE CUSTOM FOAM CUSHION SETS

Shock and Vibration Protection

Shock and vibration can seriously damage an improperly packaged product. 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 attenuating this potentially destructive energy is essential to extending product life.

We have designed and fabricated over one million specialized carrying cases with vibration and shock isolation sys-

tems. We work with the most demanding customers in high technology business, the military and our national space program. This wealth of specialized engineering knowledge and practical experience is available to assist you on your next packaging requirement.

A free consultation with a ZERO Manufacturing, Inc. engineer can save you time and money. Show us your packaging requirement and we will design and recommend a system which satisfies your needs.



Many types of foam are available. Several of the most widely used foams are listed below:

POLYURETHANE FOAM is a low-cost cellular packaging material with predictable and excellent performance characteristics in the broad temperature range (-10° to +185°F). This material can be coated for added moisture and abrasion resistance. The ease of fabrication into a variety of shapes makes polyurethane foam especially adaptable for use as a multi-cavity cushion material. It is available in flat sheet stock or it can be molded into any required shape.

Though various colors and densities are available, gray in densities of either 2 or 4 lbs./cu ft is the most common.

This is probably the most frequently used cushioning

material in case packaging.

POLYETHYLENE FOAM is a low-cost cellular packaging material with predictable performance characteristics. The virtue of this material lies chiefly in its ability to withstand high bearing loads.

BOTH POLYURETHANE AND POLYETHYLENE FOAMS are available in anti-static versions. These foams minimize static charge generation so they contribute to the important objective of creating a static free environment. They also provide quick, but controlled, dissipation of electrostatic charges emitted from other materials.

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 dyeing 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.
- CI:** Inside fitting cover.
- COG:** Outside fitting cover with gasket clearance.
- COL:** Outside fitting cover with loose fit.
- COT:** Outside 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.

TECHNICAL INFORMATION

LASER CAPABILITIES - NEW!

New Trumpf computer controlled, five-axis laser cuts, welds and performs surface treatments with just one set-up.
Smallest Programmable Increment: .000039"
Position Accuracy: .0039"
Working Height: 28"

METAL CAPABILITIES

Presses: .45
Maximum Bed Size: 60" x 98"
Maximum Drawn Depth: 18"
Capacity Range: Up to 440 ton fully CNC controlled press with quick die change capability
Materials: Aluminum, Brass, Copper, Mu-Metal, Steel
Sizes: 100,000 Pre-tooled sizes
Shears: Blanks are cut on automatic coil shears or conventional 12 foot shears for sheet stock

PLASTIC CAPABILITIES

Rotational Molding Presses: Two four-arm presses
Maximum Product Size: 6 foot cubed
Sizes: 53 pre-tooled single entry, 24 pre-tooled double-entry, custom molding available
Thermoforming Presses: Two three-station presses, one single station press
Maximum Product Size: 48" x 72" blank
Sizes: 15 pre-tooled sizes, custom thermoforming available

ENGINEERING CAPABILITIES

Thirteen CAD-based design systems can customize designs to meet all customer and military specifications, ZERO can receive your CAD submissions in the following file formats: .DXF, .DWG, .IGS, .JPG, .TIF and .PDF
(Contact engineering for other possible submissions).

QUALITY COMMITMENT

ZERO Manufacturing, Inc. is committed to providing products and services that meet and exceed our customer's expectations. To that end, ZERO has been ISO 9001 certified since 1994 and is now qualified to ISO 9001:2000. ZERO is an SPC Certified Supplier and has received numerous awards and certifications from hundreds of customers both domestically and internationally:

Boeing
Bombardier/Learjet
Cessna
E-Systems
Fairchild
Goodrich
Honeywell
ITT

L-3 Communications
Litton
Lockheed Martin
(Star Supplier Award)
Moog Aircraft
Raytheon
Teledyne
TRW

PROCESSES

Anodizing
Assembly
Chemical Etching
Drop Testing
Environmental Testing
Heat Treating

Painting & Powder Coating
Perforations
Sheet Metal Fabrication
Tool & Die
Welding

MILITARY CERTIFICATIONS

MIL-I-45208A	MIL-STD-45662
MIL-STD-171D	MIL-STD-1595A
MIL-STD-2219 (CLASS A & B)	MIL-STD-108
MIL-T-2880	MIL-F-14072
MIL-C-53072	MIL-H-6088

ZERO CASES (UK) LTD.

In addition to distributing products made in the USA by ZERO Manufacturing, Inc., ZERO Cases (UK) Ltd. produces a wide range of deep drawn aluminum cases and non-case applications designed to specifications that meet the unique demands of the European market.

Customers include British Aerospace, Electronic Data systems (EDS), Philips Lighting, Rolls Royce, Sony and Thales.

Carry Cases: Century 2000X, DC Series, Valuline

Rack Mounted 19" Cases: VAL-AN 700, Rigid Mount commercial, Shock Mounted MOD, ENG, SNG & COTS

Standards: ISO 9001:2000, DR14, UK MoD, Def Stan 8141 Parts 1-6

For more information, please e-mail:
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