



**Clip-Lok SimPak<sup>®</sup>**

Defense Sector

# The Clip-Lok SimPak Group



# Company history

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- The Clip-Lok SimPak® system was developed in Canada in 1982
- Clip-Lok SimPak® International Limited acquired the company in November 1989
- Patents and/or trade marks are now registered or pending in more than 70 countries



# A global packaging group

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- Production, sales and marketing on four continents – North America, Europe, Africa and Asia – so we can provide service to companies across the globe.



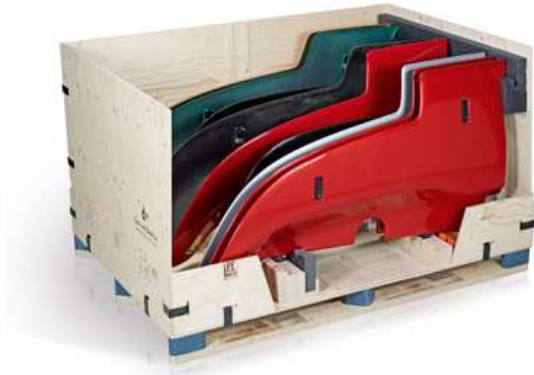
# Key segments

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- Defense



- Automotive



- Aeronautics



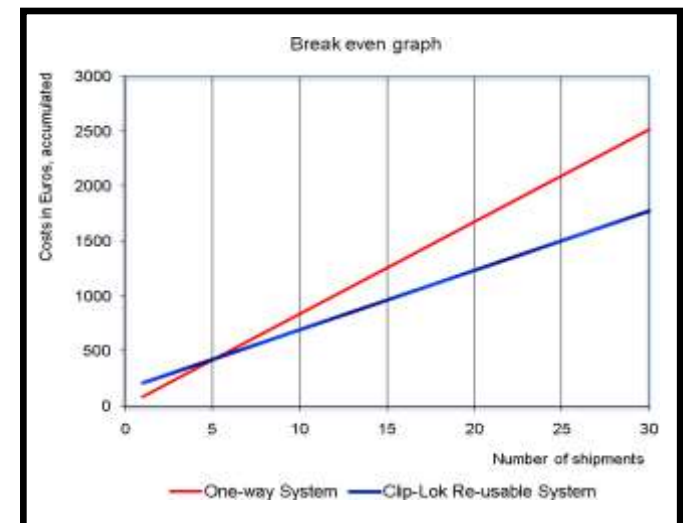
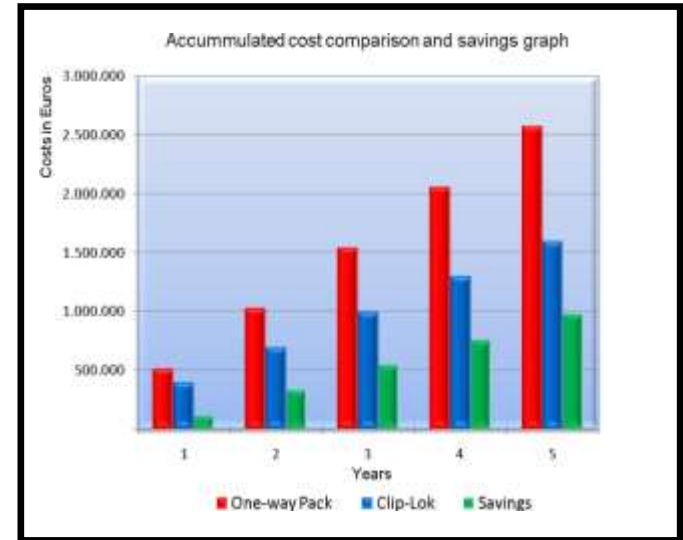
**Why have hundreds of companies around the world chosen Clip-Lok?**



# Cost effectiveness

By choosing a Clip-Lok reusable packaging system instead of a one-way system, you can significantly reduce your costs.

- Fast return on investment - often after just three trips
- Very low maintenance costs
- Minimal return shipping and storage costs due to flat-packing
- No waste disposal costs at the end of each trip
- Custom dunnage design ensures maximum cargo protection to eliminate damage costs



# Experience and support

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- Over 25 years of experience
- Global support network on four continents
  - International customer support at the point of dispatch and on arrival





# Quality

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- Extensive quality testing
- Numerous certifications
- Superior reliability and strength
- Custom design



# References

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**ArvinMeritor**



**DAIMLER**



**GENERAL MOTORS COMPANY**



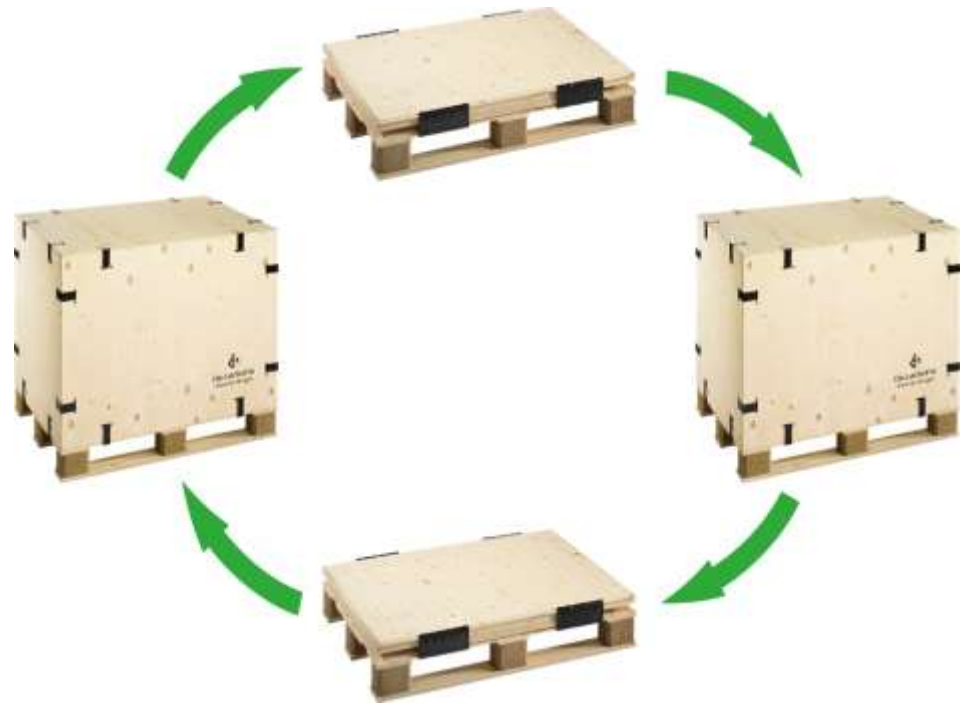
# The Clip-Lok box



# Flatpackable and reusable

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- From assembled to flatpacked in under two minutes
- All components of a flatpacked box are contained in one unit
- A flatpacked box is up to 80% smaller than an assembled box



# Clip-Lok box material

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- FCS, PEFC and ISPM15 certified plywood
- Strong and flexible
- Smooth clean surface
- Weather resistant
- Low maintenance costs - All parts can be replaced individually



# The Clip-Lok clip

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- Made of the highest quality spring steel
- 100% elastic behavior
- Tensile strength of up to 11,000 kg
- Surface protected with a high quality coating
- Can withstand a salt spray test for more than 250 hours
- Tested and approved down to  $-50^{\circ}\text{C}$  for use in arctic climates
- Tested and approved for other extreme weather conditions

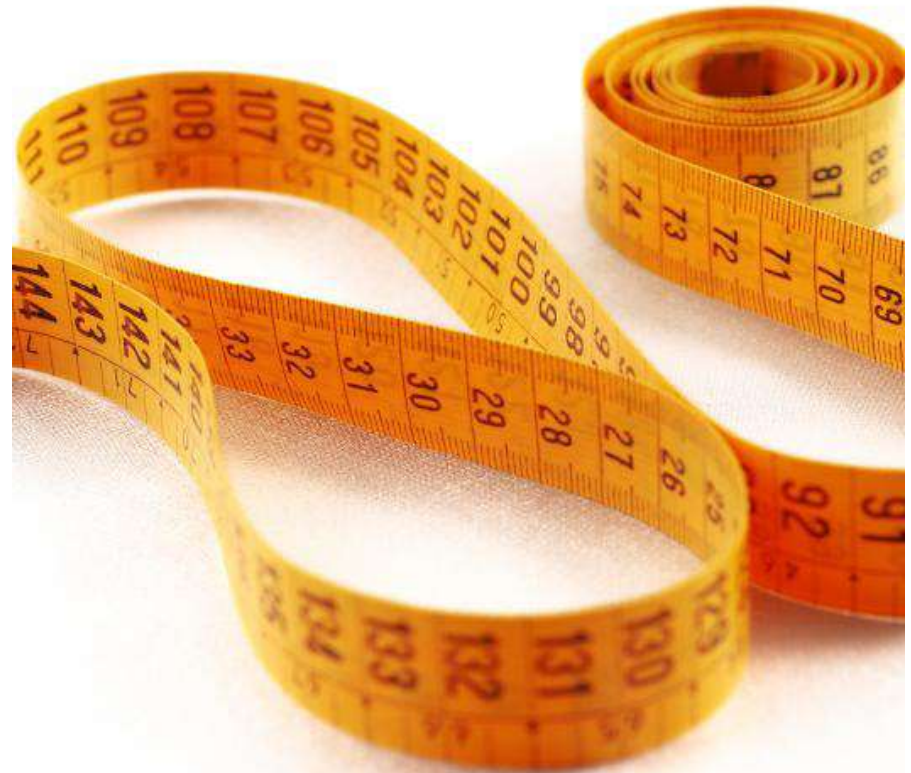


# Custom design

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Our experienced design teams will cooperate with you to meet your specific needs, including:

- Weight, volume and fragility of the product
- Loading plan
- Means and distance of transport
- Stacking requirements
- Inner shelving and other special dunnage

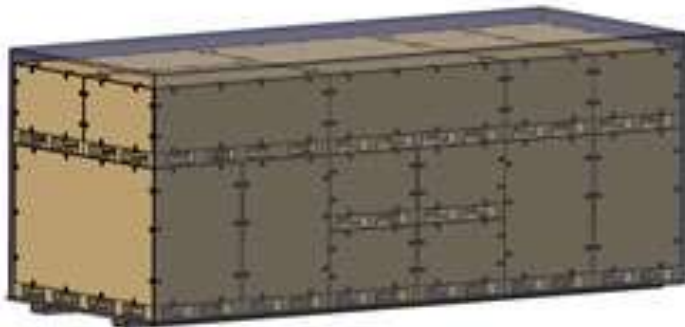


# Transport

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Custom box size can be optimized for transport by:

- Air
- Sea
- Rail
- Road





# Storage and handling

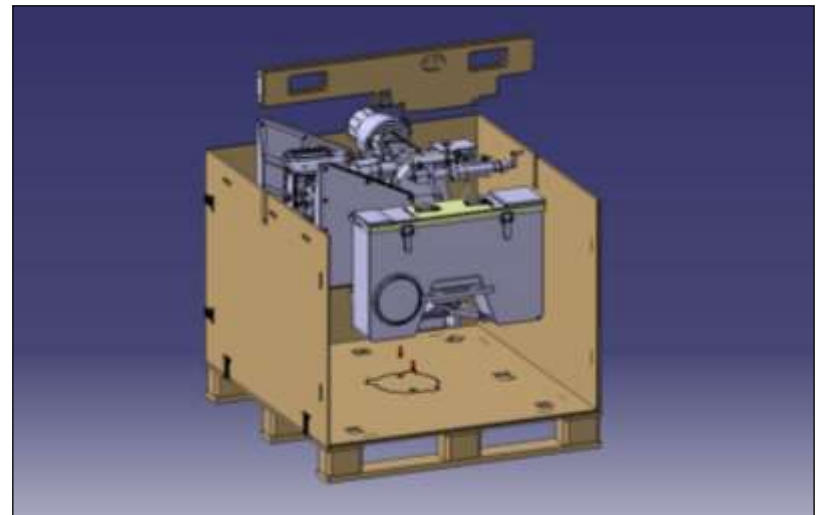
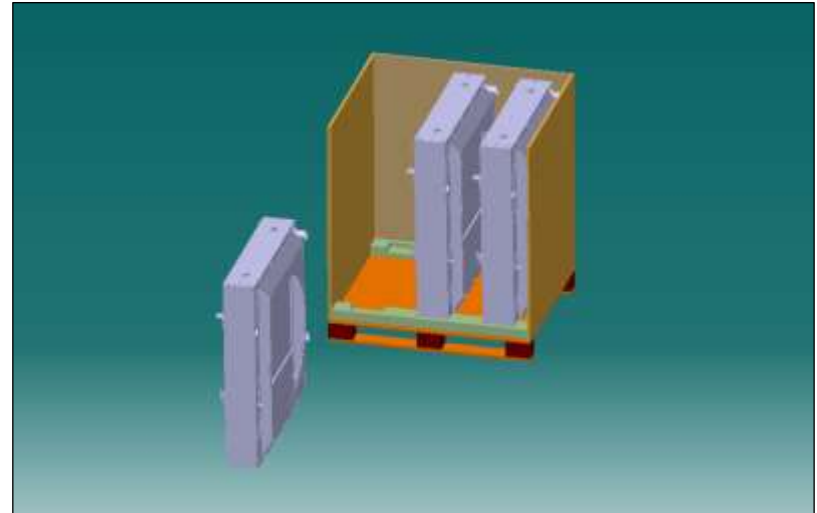
- Assembled and dismantled by one person in just a few minutes
- Loaded boxes can be stacked without racking
- Empty boxes can be collapsed, flatpacked and stacked, saving up to 80% space and saving costs
- The boxes can be a part of the production line, optimizing the work flow and saving time



# 3D integrated development

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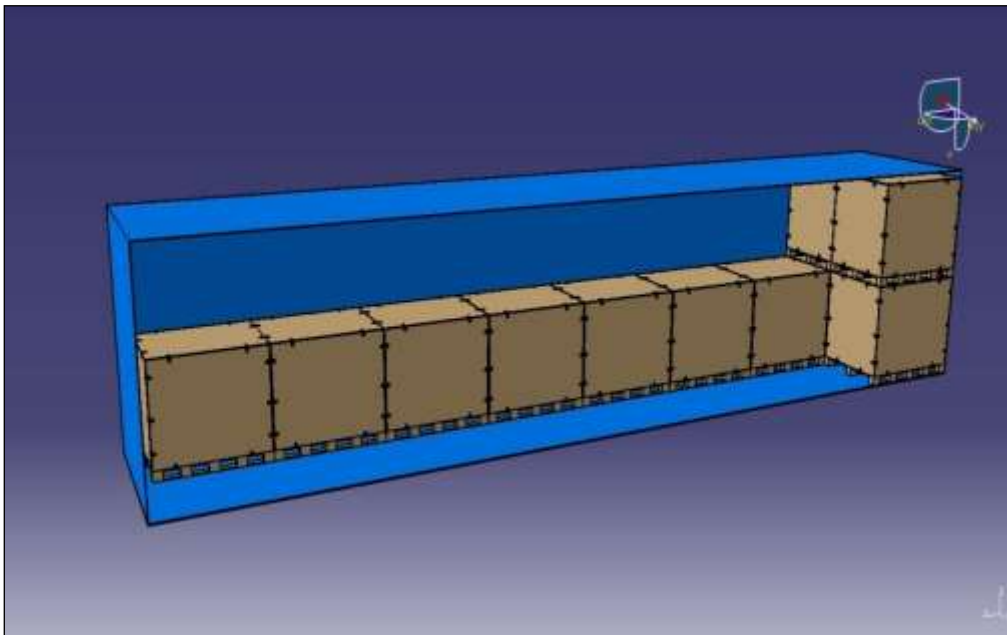
- The box design is simulated in a 3D program such as CATIA
- Allows us to determine packing density without using physical parts
- Allows fast handling of inquiries
- Based on the simulation and acquired knowledge, a prototype can be ordered for testing



# Pack plans

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- Pack plans can be provided upon request
- Boxes can be designed to match all kinds of transport methods

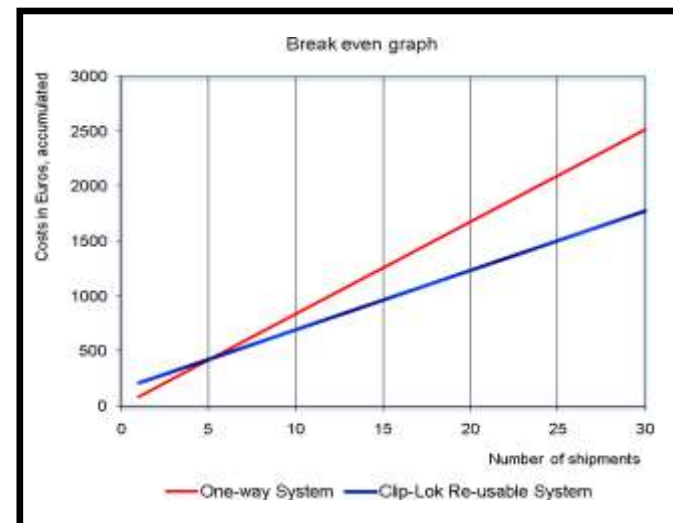
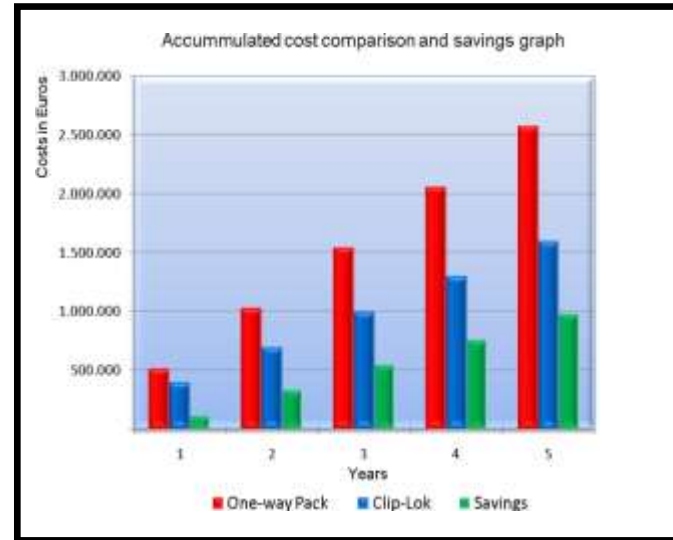


Nr 1	Nr 1	Nr1
Nr 1	Nr 2	
Nr 3		
Nr 4		
Nr 1	Nr 1	Nr1

# Feasibility study

Clip-Lok is able to calculate:

- Your cost savings when using the reusable Clip-Lok system instead of one-way boxes
- The possibilities to increase the numbers of parts and boxes per shipment
- Potential cost savings when optimum dunnage is designed



# Tests

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Clip-Lok boxes have been successfully tested by official test institutes around the world. Tests include:

- Pressure of up to 15 tons
- Transport of 1,000 liters liquid
- Stacking up to ten high when loaded
- Transport of hazardous goods
  - MIL-STD
  - ICAO standards
  - ADR/RID test
  - IMDG standards
- Vibration durability
- Drop durability
- Weather resistance
- Impact durability



# Certifications and approvals

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Clip-Lok has obtained many international approvals including:

- ISO 9000 or equivalent awarded in a number of countries
- United Nations approval for the transport of dangerous/hazardous goods
- Armed Forces accreditation in a number of countries
- Our vendors are certified according to ISO 14001
- ISPM15



# NATO stock numbers

NATO Stock No.	Origin country	Application	Internal Dimensions	Material	UN Class. No.
8145 22 606 57 64	Scandinavia	Miscellaneous	1176 x 776 x 776 mm	12 mm plywood	
8145 22 127 02 51	Scandinavia	Tents	1426 x 1126 x 847 mm	12 mm plywood	
9999 22 602 70 81	Scandinavia	Miscellaneous	776 x 576 x 576 mm	12 mm plywood	
7125 22 602 70 79	Scandinavia	Shelving for CL DANI 001	1176 x 776 x 807 mm	12 mm plywood	
8115 22 309 22 18	Scandinavia	Miscellaneous for arctic use	1176 x 776 x 776 mm	12 mm phenolcoated plywood	
8115 22 600 41 82	Scandinavia	Miscellaneous	1176 x 776 x 592 mm	12 mm phenolcoated plywood	
8115 22 600 41 78	Scandinavia	Miscellaneous	1176 x 776 x 776 mm	12 mm plywood - blue	
8115 22 604 44 12	Scandinavia	AC-M7 air conditioning	998 x 800 x 1357 mm	12 mm plywood	
8145 22 607 92 91	Scandinavia	Cabinet box	776 x 776 x 1140 mm	12 mm plywood	
9999 22 612 46 38	Scandinavia	Cabinet box	776 x 592 x 1140 mm	12 mm plywood	
8115 22 612 91 19	Scandinavia	VA-M40 heating	1428 x 726 x 1015 mm	12 mm plywood	
5120 17 117 45 23	Scandinavia	Tool to take off the clips		Springsteel - Hardened	
5340 17 117 45 22	Scandinavia	Clips to close the box		Springsteel - Hardened	
8115 33 203 04 20	Spain	Miscellaneous	600 x 800 x 700 mm	18 mm plywood	UN 4D/Y(250)/S/04
8115 33 203 04 11	Spain	Miscellaneous	1200 x 800 x 700 mm	18 mm plywood	UN 4D/Y(300)/S/04
8115 33 203 04 12	Spain	Miscellaneous	2400 x 800 x 700 mm	18 mm plywood	UN 4D/Y(400)/S/04
8115 22 621 91 14	Scandinavia	Refrigerator	810 x 860 x 2000 mm	12 mm plywood	
8115 22 612 91 15	Scandinavia	Dish washer	740 x 690 x 1450 mm	12 mm plywood	
8115 22 612 91 25	Scandinavia	Washing machine	680 x 600 x 900 mm	12 mm plywood	
8115 22 612 91 21	Scandinavia	Water treatment	1185 x 790 x 620 mm	12 mm plywood	
8115 22 612 91 16	Scandinavia	Vacuum cleaner	750 x 730 x 1120 mm	12 mm plywood	
8115 22 612 91 18	Scandinavia	Tent poles	3574 x 576 x 576 mm	12 mm plywood	
8115 22 612 91 17	Scandinavia	Tent doors	2800 x 1120 x 576 mm	12 mm plywood	
8145 22 617 82 67	Scandinavia	Powertrain	3090 x 2300 x 1190 mm	18 mm plywood	
8115 22 623 17 97	Scandinavia	Misc. air drop box	1076 x 1076 x 1147 mm	12 mm plywood	
8115 22 623 17 98	Scandinavia	Misc. air drop box	1036 x 496 x 443 mm	12 mm plywood	
8145 01 582 43 76	USA	Fuel cells	63 x 53 x 23 inches	3/4 inch plywood	

# UN approvals

Report date:	Reference:	Test Institute:	Type of Box tested:	Tests standards:	Purpose of tests:	Actual tests done:	Passed
July-91	AMC 0791	US Army Packaging, Storage & Cont.Centre	1200x1015x1100 mm including dummy load	F.T.M.S 101c and the Amer. Society of Testing and Materials, St. D880	Rough handling	Road test.,vibration, drop tests,incline-impact,compression	Passed
May-93	DRA0593	Ministry of Defence UK Def. Research Agency		Defence Standard 1991 81 – 41 / v 3 req.,to level J	Heavy duty,robust shipping storage	Drop tests,leakproofness, stacking, cooerage	Passed
nov-94	BVI G-94.211 4D/Z.100/S/*B/CLIE-949106	BelgiumPack.Institute Brussels	719 x 583 x 582 mm 24 clips	UN-part9, IMDGannex1, ICAO-part 7,ADR – RID Appendix V (A5)	UN qualification for carrying airbags	Drop test,stacking test	Passed
nov-94	BVI G-94.210 4D/Z.130/S/*B/CLIE-949105	BelgiumPack.Institute Brussels	725 x 499 x 569 mm 24 clips	UN-part9, IMDGannex1, ICAO-part 7,ADR – RID Appendix V (A5)	UN qualification for carrying airbags	Drop test,stacking test	Passed
jun-95	BVI G-95.106/2 4D/Y.240/S/* B/CLIE-959614	Belgium Pack.Institute Brussels	966 x 871 x 967 mm 28 clips	UN-part9, IMDG-annex1 par.8 ICAO-part 7, chap.4 ADR – RID appendix V	UN qualification for carrying ammunition	Drop test, stacking test	Passed
jul-96	USADACS 96-21	US Army Defence	1255 x 1022 x 1276 mm	MIL-STD-1660	MIL-STD-1660	Stacking/compression	Passed
		Ammunition Centre	28 clips 18 mm		Qualification	Vibration	Passed
						Drop Test	Passed
						ncline-impact	Passed
aug-96	66039 / 35107317	Israeli Military	1124 x 754 x 1153 mm	MIL – STD – 810D	MIL-STD-810D	Stacking/compression	Passed
		Research and		(proc.514.3 cat.1)	Qualification	Vibration	Passed
		Development				Drop Test	Passed
		Centre				Incline-impact	Passed
mar-00	G-00.050 4D/Y300/S/* B/CLIE-000031	IBE-BVI –	1200 x 800 x 917	UN – Part 9	Qualification for	The IMDGCode, Annex 1	Passed
		Ministry of transport &	18 mm phenolcoated plyw.	IMDG – Annex 1	Transport by	The European ADR-Agreement	
		Infrastructure	32 clips (3-2-3)	ICAO – part 7	road, rail & air	The International RID Regulatio	
			hinged lid allowed	ADR-RID	For waste	The ICAO Technical Instructions	
		Tests performed by Clip-Lok Foresco – Belgium		Appendix A5(V)	transport		

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# UN approvals

Report date:	Reference:	Test Institute:	Type of Box tested:	Tests standards:	Purpose of tests:	Actual tests done:	Passed
08-01-2004	DEF-STD 81-113	Virlab	C.M.R1: UN 4D/Y(250)/S/04 C.M.R2: UN 4D/Y(300)/S/04 C.M.R3: UN 4D/Y(400)/S/04	Stanag 2828 (ED4) Annex D Unit Load Test Stanag 2829 (ED3) Ratification Draft 1 Materials Handling Equipment	Military Handling	Compatability with mechanical handling Stacking test Stability test Impact test High Frequency Low Frequency Overturning test	Passed
13-01-2004	241101	Virlab	CL1 – CL2 – CL3	Disposiciones sobre mercancías peligrosas en el transporte aéreo (MOPT) – Capitulo 4 – Ensayos de idoneidad de los Embalajes	Packaging to contain articles from Group Packing II (e.g. lithium batteries, electrolyte acid for cells)	Stacking Test Free Fall Test (1,2 m – 5 drops)	Passed Passed
22-12-2008	ZA-X 384 4D/Y15/S/* ZA/+AA5791	Rheinmetall Denel Munition South Africa	External dimensions: 411 x 411 x 214 mm Internal dimensions: 375 x 375 x 160 mm		Airpack test of 75 fuzes packed in 3 layers of 25 each	Explosive test	Passed
22-04-2009	SDL/sdl/G-09.072 4D/Y250/S/* B/CLIE-***	Belgian Packaging Institute	1033 x 840 x 813 mm	UN-regulations - part 6 IMDG - part 6 ICAO - part 6 ADR - RID part 6	Transport of dangerous goods of the packing groups II & III	Drop test Stacking test	Passed Passed

# Environment

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- Less environmental impact than that of comparative one-way packaging
- Made of FSC, PEFC and ISPM15 certified wood
- Non-toxic glue
- Recyclable materials
- Durability, reusability and flatpack-ability reduces costs and pollution



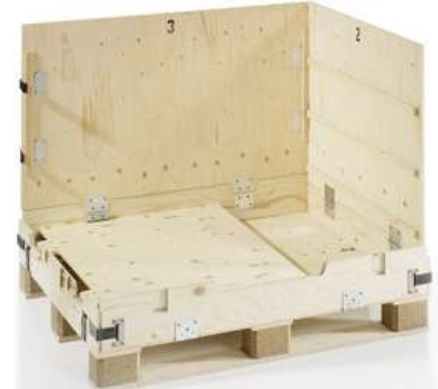
# The Clip-Lok Standard box

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# The Clip-Lok 2P box

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# Advantages of the 2P box

- Only two loose parts – lid and front panel
- Hinged panels and clips
- The dunnage folds into the box when flatpacked
- Fast and easy handling



# Dunnage



# Clip-Lok dunnage

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- Custom designed for each assignment
- Ensures safe transport of any type of item including:
  - Sensitive electronics
  - Hazardous goods
  - Large panels
  - Heavy and bulky parts
- High packing density – optimized space usage within the box



# Dunnage materials

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- Wide range of dunnage materials including plywood, steel, plastic, PUR and foam
- Combinations of various materials
- Chosen according to the items to be transported and the means of transport





# Integrated dunnage

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- No loose parts
- Reduced pack and unpack times
- All parts are contained in the flat-packed box



# Other dunnage solutions

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- Self-supported construction
- Supportive blocks
- Loose dunnage
- Shelving



# Soft-Rack dunnage

- Optimizes packing
- No need for extra packaging due to the protective fabric shelving
- Immediate access and handling
- 2P box dunnage folds into the box when it is flatpacked



# Deployment



# Sea cargo

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- Increased protection against dust, sand and rain
- Reusable
- Available with internal shelving
- Easier packing and handling
- Lower maintenance costs
- Strong and stackable



# Air cargo

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- Designed to fit the Lockheed C130 airplane loading pallet – can be customized for other carriers
- Two boxes fill the pallet leaving only space enough for the regulated emergency exit
- The boxes can be pre-loaded on site
- Fully optimized packing density for cost efficiency
- When the airplane arrives, the two boxes can be quickly and easily loaded onto the cargo pallet and made ready for flight
- The box panels can be easily removed to allow loading from the top or side, or on an empty pallet if all sides are removed



# Camps



# Cabinet box

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- Improved soldier welfare
- Designed to fit in shipping containers
- All parts can be flatpacked in the box and the void can be filled with personal gear
- Can be locked by padlock
- Can be anti-fungus treated





# Shelving box

- Shipped as a transport box and converted into shelves at arrival
- Operational in 2 minutes on site
- Organized from point of origin
- Easy access
- Stackable up to 15 tons
- Custom designed
- Front or top loading



# Tents

- Easier packing
- Less damage
- Easier logistics
- Stackable
- Lower transport costs



# Dual Purpose box

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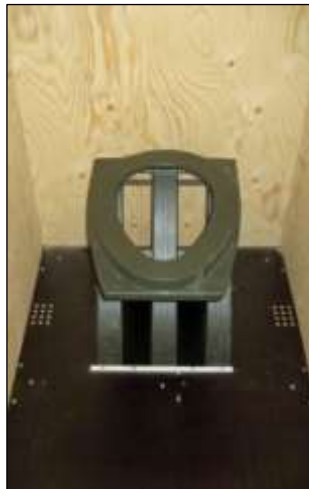
- Provide equipment and sanitary facilities in one shipment
- Saves on logistics handling and costs
- Assembled in 5 minutes without special tools
- Can be shipped flatpacked
- Reduces the risk of spreading disease
- The box dimensions are 1980 x 750 x 1154mm to optimize transport by air or sea



# Dual Purpose box

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- Functions as both a transport box and a latrine
- Various toilet configurations are available
- The door can lock from the inside
- Provides sanitation and privacy



# Flooring

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- Very stable and sturdy construction
- Raised above the ground
- Fast and easy assembly
- The unique chamfering ensures a precise construction.



# Food and beverages

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- Boxes for liquid can hold up to 3000 liters
- Boxes for food transport and storage
- The boxes can be dropped from a helicopter
- Emptied boxes can be used for storage or flatpacked and stacked



# Alternative use

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Emptied Clip-Lok boxes can be used for many different purposes, for example:

- Check-in terminal
- Operating table



# Equipment





# AC-M7 air conditioner

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- Ramps provide easy loading of the A/C
- Ramps and spare clips are integrated in the box
- A clip removal tool is integrated in the pallet base
- When collapsed the box takes a minimum of space
- Increased protection against dust, sand and rain
- Dimensions (mm)  
998 x 800 x 1357



# Autoclave

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- Easier handling and improved logistics
- Better protection against sand, dust and rain
- Less damage
- Lower transport costs
- Stackable



# VA-M40 heating unit on wheels

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- Easier handling and improved logistics
- Better protection against sand, dust and rain
- Less damage
- Stackable
- Lower transport costs
- A clip removal tool is integrated in the pallet base
- Dimensions (mm) 1600 x 750 x 1000



# Explosives and weapons

Clip-Lok boxes have obtained United Nations approval for the transport of dangerous and hazardous goods.

- High packing density
- Very secure and reliable reusable packaging



# Sensitive cargo

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- Safely packed to protect surfaces
- Custom dunnage for maximum packing density
- The cargo can be placed in several layers
- Easy access and handling



# Special purpose boxes

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Together with several organizations, Clip-Lok has developed a variety of special multi-functional boxes.



# Miscellaneous boxes

Boxes used by rescue units for the transport of:

1. Refrigerators
2. Va-M40
3. AC-M4
4. Tents
5. Tents
6. Chairs
7. Tables



# Heavy loads





# Leopard 2 Triebwerk

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- Designed for G-force 3,5
  - Reference: NSN 8145226178267
- Net weight 7 tons
- Optimized handling
- Can be stacked two high
- Mounting blocks and rings for safe transport
- Solid base and reinforced sides and top



# Liquid bladder boxes

- Puncture free box - no nails, screws or staples
- Can withstand tough environments - pressure, shock and impact
- Smaller boxes can be shipped by air
- Also very large sizes – For example 300 m<sup>3</sup>
- Weather resistant, but can be coated with polyurea for extra protection against salt water
- Can be lined with foam for extra protection
- Collapsible after use



# Clip-Lok packaging guarantee

Cost effectiveness



Experience and support



Quality



# How may we help you?





**Clip-Lok SimPak<sup>®</sup>**

[www.clip-lok.com](http://www.clip-lok.com)