DELIVERY MANUAL

Volvo Group Trucks Operations, CVA
Conventional
North America

VOLVO

VOLVO

Volvo Group Trucks Operations
Conventional
NA

Plant Location	Plant ID	Plant Address
CEVA (UTI)	51916	One Michelin Way Independence, VA 24348
CVG – Trim Systems	84003	320 Newbern Road Dublin, VA 24084
Fontaine Modification Co.	81172	5135 Cougar Trail Drive Dublin, VA 24084
Imperial Group	50148	4969 Stepp Place Dublin, VA 24084
Lehigh Valley Operations	4285	7000 Alburtis Macungie PA 18062
Lehigh Valley Logistics Center (LVLC)	42615	3041 Schoeneck Rd Macungie, PA 18062
Mack CKD	4296	3041 Schoeneck Rd Doors114-117
New River Valley	4388	4881 Cougar Trail Road Dublin, VA 240184
Supply Technologies	21522	7520 Morris Ct. Suite 110 Allentown, PA 18106
Volvo Managed Logistics Center (VMLC)	47941	Camrett 6540 Viscoe Road Radford, VA 24141
Westport South	81043	802 Kyle Avenue Roanoke, VA 24012
Westport North	44756	650 Boulder Dr., Ste. 100B Breinigsville, PA 18031

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1. INTRODUCTION

This document is addressed to sales and logistics managers or any other person responsible for shipments to the Volvo Group Trucks Operations receivers mentioned on page Number 2 (Mack Trucks / Volvo Trucks).

This Delivery Manual is an appendix to the Key Element Procedure #7 from the Volvo Group:

http://www.volvogroup.com/en-en/suppliers/our-supplier-requirements.html

This Delivery Manual does not change or amend the present agreement. It is a compilation document, concerning the roles and responsibilities related to the day-to-day work with regard to all deliveries to the Volvo Conventional CVA sites.

Within GTO CVA, this Delivery Manual is considered as an integral document to our quality standards and will be referred to in all matters concerning shipments to GTO CVA Plants, e.g. supplier assessment, coaching, purchasing and general delivery matters.

It is necessary that suppliers implement the standard inbound flows described in this Delivery Manual. However, for some specific flow set-ups, the supplier must apply specific rules, described in separate documents: Sequence, Consignment Stock, Logistic Platforms etc.

You can also find this document on the Supplier Portal: http://supplierportal.volvo.com

Owner of the document: GTO CVA NA Logistics (Supply Chain Support)

Volvo NA CVA Plants expect from its suppliers 100% dispatch precision with 100% respect of the delivery instructions

January 1rd 2017

Stephan De Koninck
Logistics Vice-President
Volvo GTO CVA Conventional

January 1rd 2017

David Peters
Vice-President Projects and Operations Americas
GT Purchasing

2. ABBREVIATIONS

ADR	Agreement concerning the International Carriage of Dangerous Goods by Road
ASN	Advanced Shipment Notice
ATLAS	Advanced Transport Logistics for Automotive Supply
CVA	Cab Over Engine - Cabs and Vehicle Assembly
CPOT-IPD	Conform Part Out of Tool – In Plant Delivered
DAP	Delivered At Place (INCOTERM)
DP	Dispatch Precision
EDI	Electronic Data Interchange
FCA	Free Carrier Advised Place (INCOTERM)
GTO	Group Trucks Operations
IMDG	International Maritime Dangerous Goods
IR	Inspection Report
KEP 7	Key Elements Procedure 7 (Logistic Requirements)
LES	Logistics Enterprise Solution
MMOG/LE	Materials Management Operations Guidelines/Logistics Evaluation
PPAP	Production Part Approval Process
PMR	Packaging Material Receipt
PN	Part Number
PO	Purchase Order
POC	Proof of Collection
PU	Packaging Unit
TBR	Transport Booking Request
VAT	Value-Added Tax
V-EMB	Volvo Packaging
VGLS	Volvo Group Logistics Services
VTD	Volvo Transport Document
WEB EDI	Web Application of Electronic Data Interchange

3. DELIVERY INSTRUCTIONS

3.1 Delivery Instructions for serial production parts:

Delivery instructions include detailed timetables regarding Delivery Schedule, call-off, etc. The delivery instructions depend upon the individual agreements between the NA CVA Plants and the supplier and state the **exact date and the required quantity of material.**

Each call-off specified in the Delivery Schedule must be **strictly respected.** This implies that the goods must be dispatched to **the correct gate, in the correct quantity and on the specified date. The goods should be dispatched no earlier and no later** (unless other delivery methods are agreed upon, as for sequential shipments). It is also applicable for Phase-in / Phase-out parts.

REMINDER:

If the quantity received is greater than the call-off, Volvo reserves the right to return the extra quantity of pieces at the supplier's own expense (see: Chapter 8 – Supplier Deviations).

INCOTERMS stated as FCA: 'dispatch date' is stated on the Delivery Schedule.

INCOTERMS stated as DAP: 'arrival date' is stated on the Delivery Schedule.

The transmission frequency of the Delivery Schedule can be different from one plant to another. The only valid version of the DELINS/DELFOR (Delivery Schedule) is the latest one. The Delivery Schedule contains both a delivery forecast for the following 12 months and a firm period (variable from one plant to another).

The supplier must ensure the supply of parts to NA CVA Plants. This requires the supplier to make a regular comparison between the delivery schedule requests from NA CVA Plants and their available short, mid and long range capacities (at least the total horizon of the CVA Delivery Plants. If potential problems become apparent, the supplier has to contact the Volvo/Mack Material controller proactively and immediately. In order to cover short-term fluctuations in demand at Volvo Plants production interruptions at the supplier, the supplier is obliged to provide adequate flexibility and/or a sufficient minimum inventory level. At the request of NA CVA Plants, the supplier must transparently present shift models, capacity utilization ratios and materials on hand, among other information.

Volvo measures the performance of suppliers through the Dispatch Precision (DP). The measurement takes into account the number of the deliveries accomplished on the correct date and in the correct quantity. For a shipment to be considered as correct in the DP measurement, **both shipment date and quantity must match the call-off.**

The global target for the entire VOLVO Group supply base is DP = 100%

You can find your personal results on the Supplier Portal. To get access, please contact your host buyer (http://supplierportal.volvo.com> My performance > View > Supplier scorecard).

Among the results is the Dispatch Precision:

- ⇨ DP average of the last 6 months (monthly data can be found at: view performance breakdown)
- ⇨ DP split by user and Business Area/Business Unit (Volvo Bus, Parts, Trucks, Powertrain, etc.)

We recommend that you monitor your Dispatch Precision on a weekly basis and compare those results with the values calculated by VOLVO to optimize your performance.

Regarding the result of the measurements of supplier dispatch precision, the supplier takes care that the measurement results are promptly available for the responsible functional area and are analyzed. If there are undesirable developments in dispatch precision, the supplier has to define countermeasures and to realize them immediately to bring the dispatch precision result back to the target value.

For any issue with your Supplier Portal account, please contact CMS services (cmsservices@volvo.com).

WARNING:

- The information flow forms the basis for a working logistics system within the supply chain. The technical equipment has to be capable of handling existing volatility and required flexibility of both Volvo Trucks and the customer's needs. Besides the B2B portals, pro-active communication is an integral part of the cooperative partnership. This contains a timely and unsolicited transmission of information on deviations from agreements from the supplier to GTO CVA Plant (e.g. delivery quantities, delivery dates and packaging)

- The supplier has to nominate and communicate the name of a defined responsible contact for logistic issues as well as a suitable back-up contact (name and contact details). The supplier ensures that the contact they have named has good knowledge of English

- Please communicate with your Volvo Material Controller within the affected plant in case of any delivery deviation.

It is your responsibility to alert your Volvo Material Controller immediately in order to take the right corrective actions:

⇨If you have not received the Delivery Schedule
⇨If you cannot fulfill the needs expressed in the Delivery Schedule as requested
⇨If you have dispatched defective parts (in addition to contacting your Volvo quality contact)

You can be exposed to extra costs if the Delivery Schedule is not respected.

Refer to: VOLVO Group General Terms and Conditions (see Chapter 8 – Supplier Deviations)

Logistic Supplier Assessment and Development

Competitiveness compels the supplier in cooperation with Volvo Group to improve the logistical performance continuously. Therefore the supplier accepts the responsibility, to perform a high degree of process improvement together with the sub-supplier.

For a holistic system assessment of the supplier and to develop the SC quality, NA CVA Plants can perform a standardized MMOG/LE logistics audit (Publisher: ODETTE). In the first stage, this audit includes a self-assessment by the supplier. In the next stage, desk verification is performed to align/agree on the result and the grade between supplier and the lead assessor of GTO. On-site verification at the supplier site is performed if there are implausible circumstances, low logistic performance or if it is a new supplier.

If necessary, NA CVA Plants conduct targeted development activities within supplier development projects at the suppliers' sites. In this context, an initial analysis of the current situation is performed, areas for improvement are identified and actions defined. This approach forms the basis for our common project success. We expect our suppliers to support us actively and with their best abilities in this regard.

3.2 Delivery Instructions for project parts (CPOT-IPD):

By continuously improving our way of working, it has been decided to involve the Volvo Group Trucks Operations CVA production Plants much earlier in the development process.

As a consequence, you - as a selected part/component supplier for our future products - have to deliver project parts (parts without PPAP) defined as CPOT-IPD parts directly to the Plants.

Rules and demands for those deliveries are similar to the ones for normal serial production parts described in KEP7 and in the Delivery Manual. Additional demands for logistics and deliveries of CPOT-IPD parts is described in a document called "CPOT-IPD manual" on chapter 2.3.

The manual can be found on the Volvo Group Supplier Portal: https://supplierportal.volvo.com/vsp/int/en/E-Library/Quality/3P_and_Powertrain/APQP_PPAP/Pages/APQP_PPAP.aspx

4. DOCUMENTATION AND INVOICING

4.1 EDI Messages

As a supplier to the Volvo Group, you are required to use EDI (Electronic Data Interchange) or the Volvo Web EDI (on an exceptional or temporary basis). The messages exchanged between Volvo and suppliers are: DELINS/DELFOR, AVIEXP/DESADV, INVOIC.

To have more details regarding the technical specifications required for EDI messages:
http://www.volvoit.com/volvoit/edi/en-gb/VolvoGroup/specifications/Pages/specifications_.aspx

To be noted:
It is mandatory to have in this EDI message also **the Warehouse address** of the Volvo plant, in order to have this information automatically visible on the labels OTL1 and OTL3 (please refer to Appendixes 9.1 and 9.2.

REMARKS:

- ⇨The ASN (AVIEXP/DESADV) message must be transmitted between the moment the goods are dispatched and **maximum one hour after departure** (exception of suppliers located close to the Volvo plant: this message has to be transmitted immediately upon departure of the goods)
- ⇨Delivery Note date (AVIEXP/DESADV) = **Real** actual dispatch date
- ⇨ Dispatch Advice number = Delivery Note number
- ⇨Only one Dispatch Advice/Delivery Note and one Invoice is allowed per shipment/ goods receiver/ gate (suffix)/purchase order – **and not one per part number**

This is a demand of MMOG/LE audit (criteria 4.3.2)

Transmission problems and Software Update/Upgrade

The supplier must immediately contact both the Volvo Material Controller and the Volvo EDI support (support.edi@volvo.com) if there are any problems with the sending of an ASN (AVIEXP/DESADV) message in due time, or if there is a planned change or upgrade to software or hardware that might temporarily stop the transmission of ASN (AVIEXP/DESADV) messages.

REMINDER:

Your INVOIC message must be based on your AVIEXP/DESADV message.
Any issues with AVIEXP/DESADV could impact your INVOIC handling

4.2 Delivery Documentation

This chapter describes the required documentation needed for deliveries to Volvo CVA Conventional Plants.

NORTH AMERICA COUNTRIES	EU COUNTRIES (including Brazil through VGLS Europe)
1 Packing Slip	Delivery Note (2 copies)
1 Bill of Ladding	Packing List
3 copies of the Invoice	
POC	POC
Dangerous Goods Documents (if	Dangerous Goods Documents (if
Original Freight Bill: **VTD** (Volvo Transport Document) or **CMR** (Convention relative au Contrat	Original Freight Bill: **VTD** (Volvo Transport Document) or **CMR** (Convention relative au Contrat

The Delivery Note must be issued in English. The required information is:

- ✓ Your company name/address
- ✓ Your contacts for deliveries and relevant email address
- ✓ Volvo supplier number (stated on the Volvo Purchase Order)
- ✓ Delivery Gate / suffix
- ✓ Delivery Note number (AVIEXP/DESADV number)
- ✓ Delivery Note date/ Dispatch date (**REAL date of shipment**)
- ✓ Volvo Order reference (stated on the Purchase Order and Delivery Schedule)
- ✓ Origin code (identification of the origin of the goods). In accordance with ISO- Codes. The supplier's Declaration of Origin according to council Regulation: EC 3351/83 and 71/96
- ✓ Delivery conditions (ref: INCOTERMS, e.g. FCA)
- ✓ Volvo or Mack Trucks part numbers
- ✓ Description of the part number
- ✓ Delivered quantity per part number
- ✓ Unit of measurement as stated on the Purchase Order e.g. piece, litre, meter, kilo, etc.
- ✓ Total quantity of packages
- ✓ Total gross weight and total net weight. Cargo weight is important for all flows to Volvo Plants. The supplier must secure that **the gross and the net weights are NOT estimated weights**
- ✓ Identification of means of transport (vehicle number) or carrier name
- ✓ Volume (m3) of loaded goods

REMARKS:

⇨We request that you attach an extra copy of the Delivery Note to all packages shipped by airfreight

⇨All copies of documents must be clear and legible with no risk of misinterpretation

⇨All documents have to be put in separate envelopes for each individual final receiver (suffix/gate of delivery) and handed over to the driver

VOLVO

Original Commercial Invoice

It is of the highest importance that the following detailed data is indicated separately on each invoice. If any information is missing, the Invoice will not be paid and will remain in the litigation department until the problem is solved.

- ⇨Your company name/address
- ⇨ Volvo supplier number (number mentioned by Volvo on the Purchase Order to your company)
- ⇨Invoice number
- ⇨Invoice date
- ⇨Invoice to (the legal entity mentioned in the Purchasing Contract)
- ⇨Volvo VAT-identification number related to the buying company
- ⇨ Delivery Note number (AVIEXP/DESADV number)
- ⇨Dispatch date (shipment date)
- ⇨Volvo Order reference (the Order reference stated on the Purchase Order and Delivery Schedule)
    - *XXX: (Volvo buyer number)*
    - *XXXXXX:(Number or alphanumeric internal reference number)*
    - *XXX: (Suffix). The suffix indicates the internal goods address, administrative handling and administration of the material.*
- ⇨Country of Origin according to the rules described in the trade agreements
- ⇨Supplier's Declaration of Origin (non EU suppliers) – EC3351/83 and 71/96
- ⇨Delivery conditions (ref. INCOTERMS, e.g. FCA + location)
- ⇨Volvo or Mack part numbers
- ⇨Description of the part
- ⇨Total delivered quantity per part number
- ⇨Indication for piece, liter meter, kilo, etc (unit of measurement)
- ⇨Agreed price per ordered unit of measurement
- ⇨Total material value per part number
- ⇨Total Invoice value
- ⇨Currency description (abbreviation according to ISO-codes: USD, EUR, SEK, GBP, etc.)
- ⇨Total quantity of package
- ⇨Specification of all package numbers shipped and clearly stated which part numbers are in which package

Remarks: The Delivery Note number (referred to on the commercial Invoice) must be unique for each delivery. The invoice should contain only one order suffix. EC suppliers must comply with VAT rules (according to EU legislation of January 1st 2004).

REMINDER:

All invoices have to be sent by EDI or Web-EDI.
For more support, please contact: Administration VBS Edi Group: Adm.vbsedigroup@volvo.com

For any payment questions, please contact VBS Call Center
www.volvogroup.com/VBSCC

Original Packing list

An original packing list must accompany the cargo when the goods are delivered to the carrier.

It is of the highest importance that the following detailed data is indicated on each packing list:

- ✓ Type and quantities of packing
- ✓ Real Gross and net weight
- ✓ Commercial Invoice number
- ✓ Date
- ✓ Signature

5. PACKAGING & LABELING

5.1 Packaging Principles

Working within the framework given by the plant logistics engineer, the supplier is required to participate in the development and the technical validation of the Packaging Instructions. The supplier will receive an updated Packaging Instruction as confirmation every time an update is required. The Logistics Engineering department is responsible for the initiation and final decision of the technical Packaging Instructions.

REMINDER:

The Packaging Instruction sent by each plant has to be validated before the first delivery and must be respected for each shipment

If Volvo does not receive any feedback within the application date, the Packaging Instruction is automatically considered as validated and has to be respected.

The complete packaging manual is found in Appendix 9.3

Returnable packaging and racks, which are the property of Volvo, must only be used for the purposes defined in this document.

It is the supplier's responsibility to advise the Material Controller of any damage to specific packaging.

The use of Volvo packaging (both standard and special packaging):

- ✓ Is intended exclusively for material deliveries to Volvo CVA Conventional Plants
- ✓ Is not intended for internal use (as for an example, batch production at supplier plant) or use by sub-suppliers
- ✓ Is intended to ensure safety and quality throughout the supply chain. This is achieved by complying with the packaging terms negotiated between the customer and the supplier

One way packaging and/or consumption materials, such as bubble plastic and anti-corrosion paper are the sole responsibility of the supplier.

The VOLVO Packaging Handbook is under VGLS responsibility. The document describes the rules and stipulates the responsibilities of the supplier to request and control packaging.

Volvo Group Logistics Services Portal
https://logistics.volvo.com

To learn more about our packaging system, please visit the VGLS Portal: http://logistics.volvo.com/vlc/vlc/en/Pages/home.aspx

If you need a new password to the Volvo Logistics Portal, please contact:

cmsservices@volvo.com

6. TRANSPORT

Volvo is focused on reducing the total supply chain lead time. In order to improve this process, all transport should be carried out in accordance with Transport Instructions.
In most cases, the delivery terms will state that Volvo shall arrange transport in compliance with INCOTERMS 2010: **FCA supplier** premises. However, exceptions may occur. Please refer to your Purchasing INCOTERM Agreement.
Each Volvo supplier will receive specific instructions regarding transport procedures issued by VGLS (Volvo Group Logistic Services) every time an update is requested or needed.
The Transport Instructions define your shipping day, appointed carrier, deadline for transport booking/ collection and all the routines you must follow to send the material as per requested in Volvo's Delivery Schedule.

6.1 Booking Procedure

The booking must be made at the time and on the day(s) specified on the Transport Instruction, issued by VGLS.

This instruction covers different ways of booking transportation arranged by Volvo Group Logistics Services.
⇨ Suppliers must book via the **ATLAS** application on Volvo Group Logistics Services' web portal. User instructions and your valid collection days can be found in the application:
http://logistics.volvo.com/vlc/vlc/en/applications_1/atlas/Pages/Default.aspx

If the ATLAS application is not accessible for any reason always contact the **ATLAS Helpdesk** : atlas.rna@volvo.com - Phone number: 1-866-48-VOLVO).

The helpdesk will provide instructions on how to proceed (e.g. manual booking, PTA, Phone, Fax etc).

Active Atlas Suppliers that cannot enter their bookings by the deadline need to contact their Material Planner to obtain a PTA (Premium Transport Authorization). The PTA will be sent to the Logistics Traffic Department who will secure the booking with the Carrier. Non- Active Atlas Suppliers (Suppliers that ship less than 15 times per year) are the only Suppliers authorized to use the Manual TBR Process. This alternative procedure remains exceptional.

The booking must always be sent to your appointed carrier before 1 pm (local supplier time) on the working day the day before the collection day (unless otherwise agreed in specific cases).

The deadline defines the time up to which a structured Transport Booking Request (TBR) can be created or edited with no risk of impact on the cost of the associated transport. Any TBR created after the stipulated deadline or containing incomplete information will be rejected. Contact your Material Planner to arrange transport in this situation.

Sub-suppliers or first consignors, e.g. surface treatment suppliers delivering on behalf of the supplier must also, without exception, comply with these instructions.

REMARKS:

- ⇨ Non-stackable goods have to be marked on the booking request and labeled on the pallets according to the labeling rules defined in this manual (see Appendix **9.3** - Packaging).
- ⇨ Any deviation between the transport booking and the Delivery Schedule have to be reported to the Material Controller.

In case of call-offs for pick up on a public holiday, then these goods should be collected on the nearest working day prior to the scheduled collection date or on the previous normal collection date, unless otherwise agreed with the material control department. Suppliers should make the booking in ATLAS and inform the material control department of any deviation to Standard Procedure.

Transport Organized by the Supplier

In the case of INCOTERM 2010 DAT or DAP/ agreement with the Material Controller, the carrier must go to the agreed delivery gate. The driver must respect the safety rules of the delivery site.

6.2 Loading

Goods and documents must be available for pick-up at the time and date specified on the Transport Instructions and in accordance with the delivery instructions.

According to the Transport Instructions, the goods must be available for at least six hours on the valid collection day of the shipment. If the goods or the documents are not available in time on the agreed collection day, the Carrier is entitled to leave without the goods. **If this should occur, please inform your Customer immediately** (see: chapter 8 – Supplier Deviations).

The Volvo Group reserves the right to charge for booking deviations, waiting time and wasted journeys. All carried out in a clean and dry environment and in accordance with the driver's deviations will be monitored by Volvo Group Logistics Services.

The loading must be instructions. The goods must be sorted in order of consignee-suffix/place of unloading, and be in accordance with the loading plan (if it exists). The supplier must gather the goods separately and clearly identify the final customers on the packaging.

For mandatory information regarding labels (when goods are shipped), please refer to: **Appendix 9.3** – Packaging. The suffix must be written in a large font (recognizable to the forklift driver).The labels must be clearly visible from the left-hand side of the vehicle (to facilitate unloading).

REMARKS:

- ⇨Heavy goods must NOT be loaded on top of other goods but instead must be loaded on the floor of the trailer and not on the second or third level
- ⇨No pallets or heavy goods on top of the carton boxes
- ⇨Blue boxes cannot be put under other pallets
- ⇨Proof of collection (POC) has to be printed by the supplier and given to the driver with all the other mandatory documents when the goods are collected. The driver will sign the POC and leave one copy with the supplier. If the goods - for any reason - get lost, the supplier has evidence that the goods were collected
- ⇨Cargo must be cleared prior to delivery at the plant either by Volvo's own customs department or by the suppliers own forwarding agent (depending on incoterm)

About documents which should accompany the goods, please refer to chapter 4.2 – Delivery Documentation.

6.3 Extra shipment

Supplier Responsibility

The emergency transport will be organized by the Volvo plant or by the supplier itself, according to the requirement and the validation of the Volvo Material Controller. Any emergency transport costs caused by the supplier (late delivery, late booking, etc.) and organized by Volvo will be invoiced to the supplier.

Extra shipments may be required in order to avoid eventual disturbance on the production line. Any extra shipments will be delivered in accordance with the opening days of the delivery gate.

The supplier must always inform the Material Controller of any extra shipments and report the applicable parts along with the delivery date and time. The delivery gate will be confirmed by the Volvo Material Controller.

Mandatory information to be provided to the Volvo Material Controller prior to a rush transport organized by the supplier is:

Contact person name
Contact person phone number
Contact person e-mail
Carrier name and plate number
Part number
Quantity per part number
Delivery Suffix / Gate
Dispatch date and time
Arrival date and time
Weight
Size (packing type)
Number of pallets or/and boxes
Costs responsibility (if needed)

If the supplier is organizing the extra shipment, it is its responsibility to clear the goods at customs prior to deliveries in the Volvo Plants.

No temperature-controlled carriage (for example refrigerated trailer) is allowed in accordance with the CMR Regulation in the Plants.

Volvo Responsibility

In case of any emergency caused by Volvo, it may be necessary to send a request for the urgent delivery of materials (added to the Delivery Schedule). The Material Controller will contact the supplier in order to determine the practical details. Transport costs will be handled by Volvo.

6.4 Dangerous Goods Documents

When Dangerous Goods are shipped, the documentation described in the International Legislation (ADR, IMDG) must be put in a separate envelope marked “DANGEROUS GOODS” and must follow the shipment. This documentation must be provided by the supplier.

For the transport of Dangerous Goods, the shipper/consignor must adhere to all National and International regulations for Dangerous Goods.

No person may offer or accept dangerous goods for transport, unless those goods are properly classified, packaged, marked, labeled, placarded, described and certified on a transport document. Goods must comply with the conditions stated in the regulation, unless otherwise stated.

Dangerous Goods regulations describe detailed requirements applicable to the transport of such goods. All regulations concerning the transport of Dangerous Goods are based on the UN Model Regulations.
(http://www.unece.org/trans/danger/publi/unrec/rev19/19files_e.html).

It shall also be mentioned on the driver’s CMR/ Freight Note / POC that the shipment contains Dangerous Goods.

For any extra information linked to Dangerous Goods transport, please refer to the VGLS Transport Instructions.

7. U.S. CUSTOMS COMPLIANCE

Documents should be sent to the authorized Volvo Group NA Customs broker as soon as a shipment departs (when freight is tendered to the international carrier) so the Customs entry can be filed prior to arrival of the shipment. The Customs entries cannot be filed until complete documents are received.

Shipments for Mack and the Volvo Group companies should not be subject to document turnover fees for providing import documents to the authorized Customs broker for Customs clearance.

For ocean shipments:
U.S. Customs must pre-authorize the ISF (importer security filing) before the goods can be delivered to the ocean carrier. The regional support mail box should be contacted for the filing of ISF data:

Asia : adm.isfsupportasia@volvo.com
Europe: adm.isfsupporteu@volvo.com
South America: adm.isfsupportsa@volvo.com

Complete documentation includes:
1. Data Freight Receipt / b/l, airway bill, or truck bill consigned to:
Buyer / Sold to:

Mack Trucks Inc./ Volvo Group North America, LLC/VTNA
7900 National Service Road
Greensboro, NC 27409
United States

Delivery/Ship to address: (required if different from the Buyer/Sold To name & address)

Notify Party on Data Freight Receipt, B/L or awb: (this broker clears VGNA freight at **all air and ocean ports**): (additional broker contacts for U.S. Canadian border and U.S. Mexican border on next page)

Geodis Wilson USA
205 Regency Executive Center Suite 210
Charlotte, NC 28217
Attn: Ashley Arnold
Phone: +1 704-357-0012
Fax: +1 704-423-2676
Email: cltvolvoimport.ff.us@geodis.com

2. Complete invoice showing the following details in English for each item shipped:

Shipper - Name & address of shipping facility

Buyer / Sold to:
Mack Trucks Inc. / Volvo Group North America, LLC/VTNA
7900 National Service Road
Greensboro, NC 27409
United States

Delivery/Ship to address: (required if different from the Buyer/Sold To name & address)

(For loose parts)
Part #
Clear Description
If engine: serial #, build date and family name
Weight
Quantity
Value (commercial value for Customs purposes must be identified) & currency
Country of Origin
INCOTERMS (Delivery Terms)

(For complete trucks)
Truck make and model
Truck serial #
Engine part #, serial #, build date and family name
Weight
Quantity
Value (commercial value for Customs purposes must be identified) & currency
Country of Origin
IncoTerms (Delivery Terms)

Generic descriptions such as: truck part, or tool will cause delays as clarifying details are sought. Detailed descriptions will help prevent delays.

The international freight charges should also be provided to Geodis Wilson, as the same are required in the Customs entry. Please send pre-alerts to Function.truckscompliancegroup@volvo.com (Shelley Best, Leigh Mills) so they are aware of the shipment, and can assist as needed.

For shipments billed to VGNA shipping from Canada to the U.S. by truck clearing at Canada/U.S. border.
Broker contact to be shown as 'notify party' for Customs clearance:

DHL Global Forwarding

Sherry Harlach
sherry.harlach@dhl.com
TEL: 1 716-447-2249
FAX: 1 716-877-6716

Crystal Harrison
crystal.harrison@dhl.com
TEL: 1 810 987 0553
FAX: 1 810 990 1165

For shipments billed to VGNA shipping from Mexico to the U.S. by truck clearing at Mexican/U.S. border.
Broker contact to be shown as 'notify party' for Customs clearance:

DHL Global Forwarding **:**
volvo.lrd.nb@dhl.com/Adrian.carrizales@dhl.com
TEL: (956) 229-6240
FAX: (956) 229-6221

All pre Alert information should be sent to:
Function.truckscompliancegroup@volvo.com & appropriate broker

All NAFTA Inquires should be directed to:
Function.NAFTA@volvo.com

8. SUPPLIER DEVIATIONS

NA CVA Plants expect each supplier to have a crisis management system which consists of an early warning system and a detailed contingency plan. If interruptions occur within the process chain at the supplier or their sub-suppliers that could jeopardize the deadlines planned by Volvo CVA Plants, the supplier is required to inform Volvo immediately. Furthermore, a competent contact must be named for this emergency situation and must be available at all times. The supplier has to prevent any possible risk of supply shortfalls to CVA NA Plants along the entire supply chain. CVA Plants expect the supplier to define a suitable contingency plan (e.g. extra shifts, alternative production possibilities, etc.). This contingency plan is to be communicated to Volvo. The contingency concept must include the following criteria at minimum:

- Possible causes of supply problems
- Maximum expected delivery failure (quantity)
- Remedial actions and responsibilities
- Quantities and timelines of emergency supplies
- Date/time for resuming normal operation

The responsible persons as defined in the action plans provide for the timely implementation of the stipulated measures and their sustainability. Volvo retains the right to verify the contents of the contingency concept with the supplier upon request and if needed to implement further consequences, e.g. troubleshooting on site.

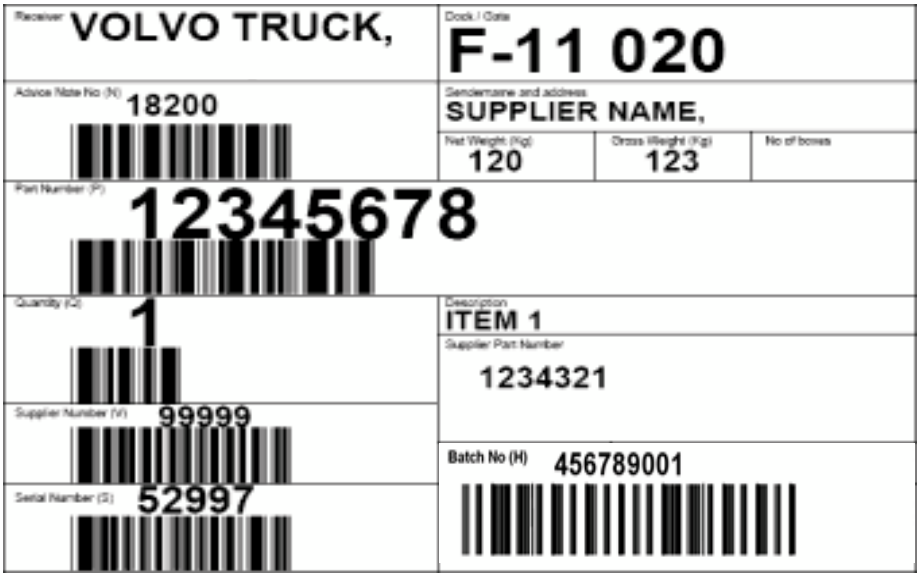
The Supplier's responsibility for Defective Parts and non-conforming deliveries (not meeting dispatch/delivery date and/or quantity) follows from Volvo's General Purchasing Conditions. In the case of any Defective Part or non-conforming deliveries, Volvo will notify the supplier about the occurred event.

Extra costs can then be charged to the supplier through Inspection Report (IR) or claims.

Reasons for extra cost (including but not limited to)
Rejected parts due to Quality (Purchasing Responsibility)
Internal repair costs
External repair costs after Supplier OK
Sorting of parts with own personnel in-house
Sorting of parts by supplier in-house
Transport costs for returns/replacements
Extra customs costs
Extra transport costs due to late deliveries
(includes extraordinary freight to Overseas Markets)
Airfreight, special land transport, taxi etc
Speeding up transport
Waiting time at pick up place
Booking deviations
Wasted journeys
Rejects in Goods receiving (Packaging / Labeling)
AVIEXP/DESADV/856 not correct or missing, per occasion
Dispatch note not correct vs Delivery Manual or missing, per occasion
Labels and/or bar code not correct, per occasion
Wrong quantity delivered (more/less) acc. dispatch note, per occasion
Wrong quantity delivered (more/less) acc. packaging instruction, per occasion
Wrong packaging type, unit load, strapping (acc. to packaging instruction)
Late or early deliveries / Shortage of parts (caused by supplier)
Incorrect (time/qty) delivery from supplier vs delivery schedule (per p/n)
Backorders in After Market dept's (per p/n and order line)
Change the building sequence on line (per vehicle/unit)
Missing at use point, mounted later or out of production line (per vehicle and supplier)
Line stop due to missing part (per minutes lost of production)
Late delivery of vehicle/unit due to missing part resulting in penalty
Vehicles off road/Break down (After Market dep't, USD/Euro's per VOR)

9. APPENDIXES

9.1 ODETTE Transport Label OTL1



Data printed on the OTL must be consistent with the data collected from the Delivery Schedules (Global DELFOR) and in conjunction with the ASN message (Global DESADV). The data information in readable text must be printed above and in conjunction with the bar code, e.g. Advice Note number.

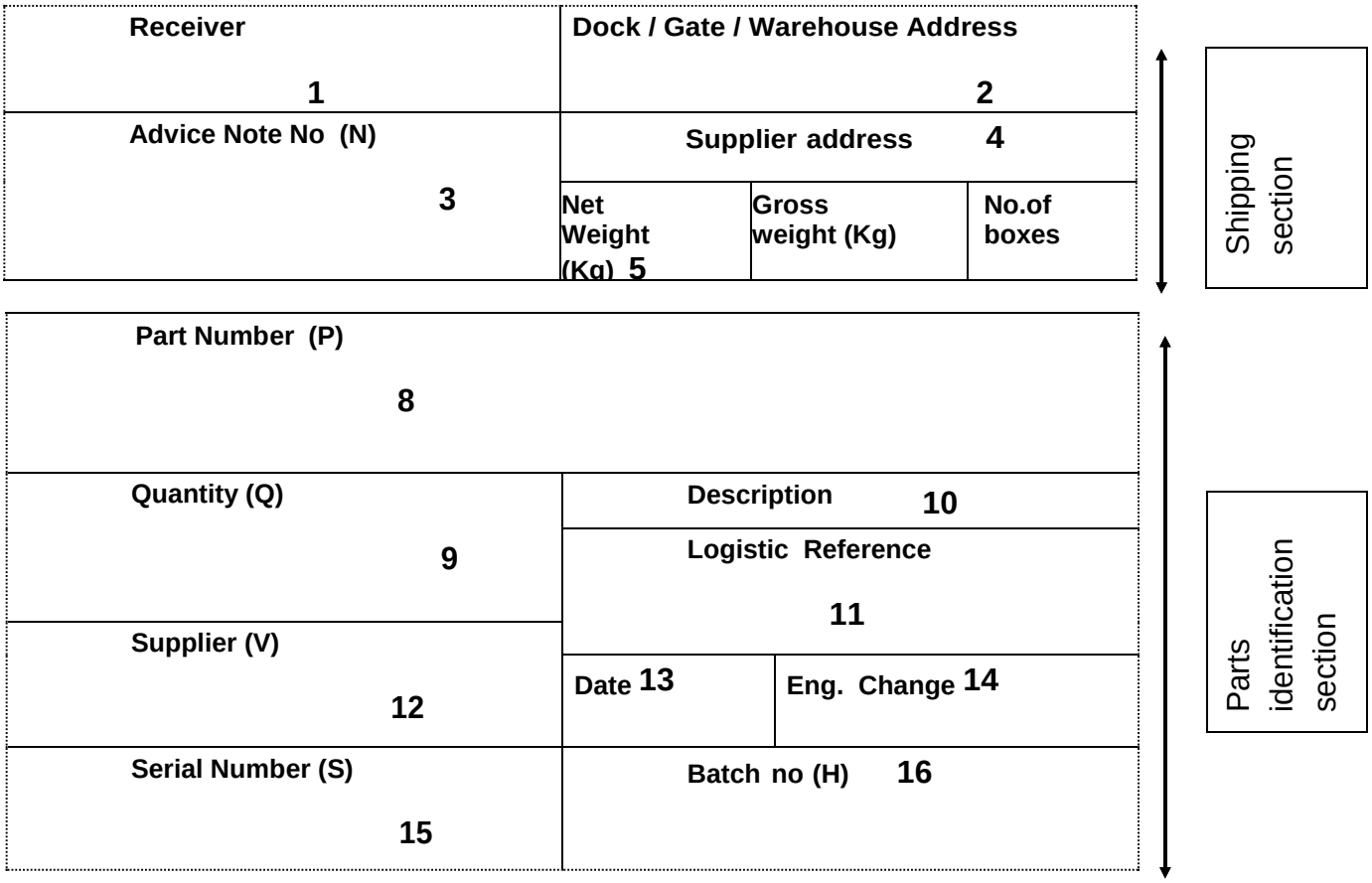
Non-significant (leading or initial) zeros and blanks/spaces in the data string should be suppressed/deleted, when the bar code and/or human readable characters are printed.

The OTL is divided into two sections:

• **Shipping Section:** Receiver, Dock/Gate, Advice Note Number, Supplier Address, Net Weight, Gross Weight and Number of boxes.

• **Parts Identification Section:** Part number, Quantity, Supplier, Serial Number, Description, Logistic Reference Area, Date, Engineering Change and Batch Number.

The Data Areas are numbered from 1 to 16: (Notice! Not actual size)



Shipping section:

1. Receiver (*Alphanumeric text):* The destination name of Volvo's unloading location.

2. Dock/Gate/Warehouse Address (*Alphanumeric text):* This information must be adaptable as it might be changed from one shipment to another due to changes in production. The information must be taken from the LOC+159 segment in latest Delivery Schedule Global DELFOR

3. Advice Note Number (N) (*Bar Code and Alphanumeric text):* The Advice Note Number is used and matched to the information given in the Advanced Shipping Note (Global DESADV). The number may not be repeated within 12 months.

4. Supplier Address (*Alphanumeric text):* Name and shipping address of the supplier and country of origin.

5. Net Weight *(Numeric Value):* Weight of goods in (kg) excluding transport packaging. Unit of measurement must be printed in the title of the field in brackets.

6. Gross Weight *(Numeric Value):* Weight of goods in (kg) including transport packaging.

7. Number of Boxes *(Numeric Value):* Number of boxes on the transport unit. This is mainly used on small box shipments.

Parts Identification Section:

8. Part Number (P) *(Bar Code and Numeric text):* The part number is designated by Volvo for the product in the package.

9. Quantity (Q) *(Bar Code and Numeric text):* The quantity in the package shall be according to the unit load (or a multiple of unit load) and should comply with the Volvo Packaging Instruction. The default unit of measurement is pieces (PCE) and does not need to be given. However, if the unit of measurement is kg, pairs, metres, etc., then the type code must be given. When used, the unit of measurement must be printed directly to the right of the quantity.

10. Description *(Alphabetical text):* The description of articles or products in accordance with the information stated on the drawing.

11. Logistics Reference *(Supplier owned):* Information is given to improve the logistics between the supplier and Volvo. This area is normally reserved for the supplier's part number. However, if agreed by the supplier, the area may be used to print alternative data as specified by Volvo. If a supplier would like to add an internal bar code in the Logistic Reference area, it is necessary to adapt to the FACT DI-Standard. This is to prevent misreading when automatic scanning is used.

12. Supplier ID (V) *(Bar Codes and Alphanumeric text):* The supplier code of the Manufacturing site.

13. Date *(Alphanumeric text):* Date of dispatch or date of production. The date must be printed in the format YYMMDD (Y = year, M = month, D = day) preceded by the character "D" (Dispatch date) or "P" (Production date).

14. Engineering Change *(Alphanumeric text):* To specify engineering changes. Information may be coded (e.g. P-04) or clearer (e.g."pre serial" etc).

15. Serial Master Label Number (S, M or G) *(Bar Code and Numeric text):* The serial number must be a unique number (not necessarily in sequential order) assigned by the supplier. The number may not be repeated within 12 months. Identifiers S, M and G are assigned according to the label usage.

16. Batch Number (H) *(Bar Code and Characters):* The Reference number to designate the grouping of products of VSP-parts (Vital Safety Parts) within the same production batch.

For more details, please refer to:

http://www.volvoit.com/volvoit/edi/en-gb/VolvoGroup/specifications/Transport%20Label%20and%20Packaging/Pages/Volvo%20Group%20Specifications.aspx

9.2 ODETTE Transport Label OTL3

Data printed on the OTL must be consistent with the data collected from the Delivery Schedules (Global DELFOR) and in conjunction with the ASN message (Global DESADV).

The data information in readable text must be printed above and in conjunction with the bar code, e.g. Advice Note number.

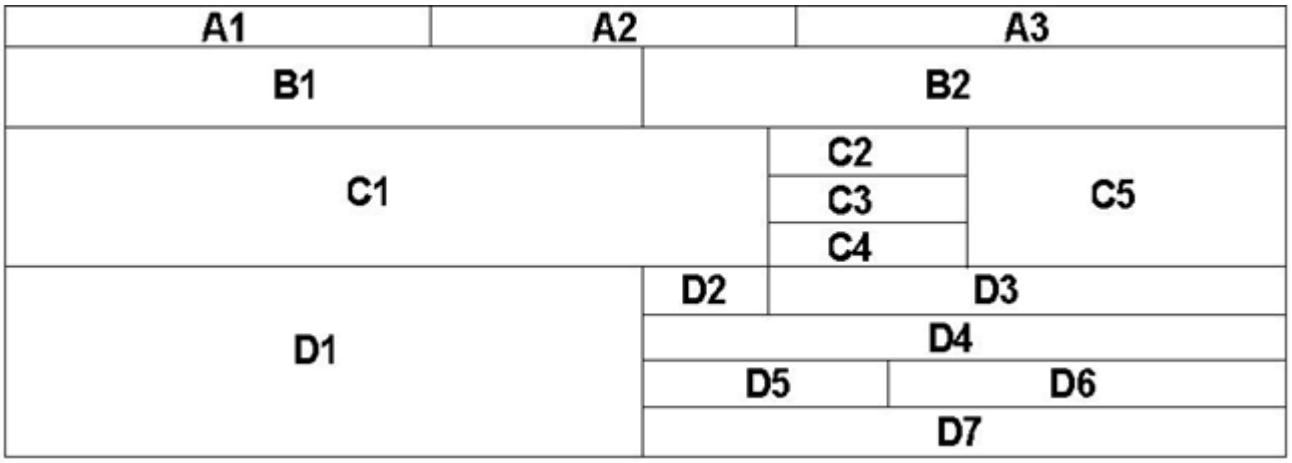
Non-significant (leading or initial) zeros and blanks/spaces in the data string should be suppressed/deleted, when the bar code and/or human readable characters are printed.

The OTL is divided into two sections:

- Shipping section: Ship To, Dock/Gate, Advice Note Number, Ship From, Net Weight, Gross Weight and Number of Boxes.

- Parts Identification section: Part number, Quantity, Supplier, Serial Number, Description, Logistic Reference Area, Date, Engineering Change and Batch Number.

The Data Areas are numbered from A1 to D7: (Notice! Not actual size)



Shipping section

A1. Receiver (*Alphanumeric text):* The destination name of Volvo's unloading location.

A2. Dock/Gate (*Alphanumeric text):* This information must be adaptable as it might be changed from one shipment to another due to changes in production. The information must be taken from the latest Delivery Schedule Global DELFOR.

A3. Supplier Address (*Alphanumeric text):* Name and shipping address of the supplier and country of origin.

B1. Advice Note Number (11K) (*Bar Code and Alphanumeric text):* The Advice Note Number is used and matched to the information given in the Advanced Shipping Note (Global DESADV). The number may not be repeated within 12 months.

B2. Dock/Gate/Warehouse Address (*Alphanumeric text):* This information must be adaptable as it might be changed from one shipment to another due to changes in production. The information must be taken from the LOC+159 segment in latest Delivery Schedule Global DELFOR.

C2. Net Weight *(Numeric Value):* Weight of goods in (kg) excluding transport packaging. Unit of measurement must be printed in the title of the field in brackets.

C3. Gross Weight *(Numeric Value):* Weight of goods in (kg) including transport packaging.

D2. Number of Boxes *(Numeric Value)*: Number of boxes on the transport unit. This is mainly used on small box shipments

Parts Identification Section

C1. Part Number (P) *(Bar Code and Numeric text)*: The part number is designated by Volvo for the product in the package.

C4. Date *(Alphanumeric text)*: Date of dispatch or date of production. The date must be printed in the format YYMMDD (Y = year, M = month, D = day) preceded by the character "D" (Dispatch date) or "P" (Production date).

C5.Quantity (Q) *(Bar Code and Numeric text)*: The quantity in the package shall be according to the unit load (or a multiple of unit load) and should comply with the Volvo Packaging Instruction. The default unit of measurement is pieces (PCE) and does not need to be given. However, if the unit of measurement is kg, pairs, meters, etc., then the type code must be given. When used, the unit of measurement must be printed directly to the right of the quantity.

D1. Serial Master Label number (S, M or G) *(Bar Code and Numeric text)*: The serial number must be a unique number (not necessarily in sequential order) assigned by the supplier. The number may not be repeated within 12 months. Identifiers S, M and G are assigned according to the label usage.

D3. Description *(Alphabetical text)*: The description of articles or products in accordance with the information stated on the drawing.

D4. Logistics Reference *(Supplier owned)*: Information is given to improve the logistics between the supplier and Volvo. This area is normally reserved for the supplier's part number. However, if agreed by the supplier, the area may be used to print alternative data as specified by Volvo. If a supplier would like to add an internal bar code in the Logistic Reference area it is necessary to adapt to the FACT DI-Standard. This is to prevent misreading when automatic scanning is used.

D5. Batch Number *(Alphanumeric text)*: The reference number to designate grouping of products of VSP-parts (Vital Safety Parts) within the same production batch.

D6. Engineering Change (Alphanumeric text): To specify engineering changes. Information may be coded (e.g. P-04) or clearer (e.g. "pre serial" etc). However, if agreed by the supplier, the area may be used to print alternative data as specified by Volvo.

D7. Supplier ID (V) ***(****Bar Codes and Alphanumeric text)*: The supplier code of the Manufacturing site.

For more details, please refer to:

http://www.volvoit.com/volvoit/edi/en-gb/VolvoGroup/specifications/Transport%20Label%20and%20Packaging/Pages/Volvo%20Group%20Specifications.aspx

VOLVO

9.3 Packaging Manual

Packaging Manual

GROUP TRUCKS OPERATIONS NORTH AMERICA
Cab and Vehicle Assembly plants

ISSUE 2017/1.0

MACK

Lehigh Valley Operations
ID: 4285, 4296
Macungie, PA

VOLVO
Volvo Group Trucks Operations

New River
Valley
ID: 4388
Dublin, VA

Packaging and Labeling

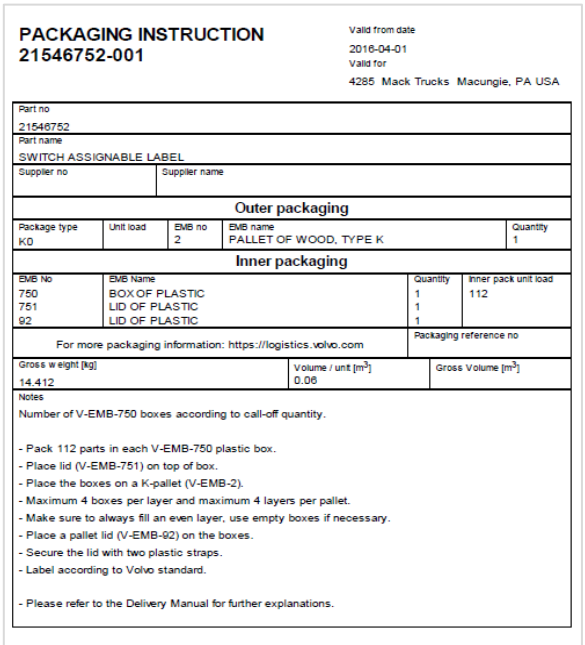
V-EMB modular containers are our returnable and reusable standards. Plastic boxes and wooden pallets are the most commonly used elements which come in a wide range of sizes. Features like stackability or collapsibility allow extremely good space utilization during transport, full or empty.

General information

- The CVA[1] Packaging Engineers define, approve, implement and optimize packaging solutions based on Supply Chain guidelines and corporate target styles.
    - KEP 7: Key Element Procedure Logistics Requirements (available on Volvo.com)
- The requirements and expectations from each CVA North America plant are communicated through an individual Packaging Instruction. This .pdf document, which lists the actions to perform, includes pictures as often as possible.
- The Packaging Instructions must be validated before the first delivery.
  They must be respected for each shipment or reworking costs may apply.
- Each Instruction is generated and sent via our Global Packaging Tool.
  Please reply by email with a confirmation of the attached packaging instruction, or suggest improvement measures. If you have not replied before the valid date we will consider the packaging instruction to be confirmed.

If a CVA plant doesn't receive any feedback before the application date, the Instruction is automatically considered as approved.

Example of a Packaging Instruction



PACKAGING INSTRUCTION
21546752-001

Valid from date
2016-04-01
Valid for
4285 Mack Trucks Macungie, PA USA

Part no	
21546752	
Part name	
SWITCH ASSIGNABLE LABEL	
Supplier no	Supplier name

Outer packaging

Package type	Unit load	EMB no	EMB name	Quantity
K0		2	PALLET OF WOOD, TYPE K	1

Inner packaging

EMB No	EMB Name	Quantity	Inner pack unit load
750	BOX OF PLASTIC	1	112
751	LID OF PLASTIC	1	
92	LID OF PLASTIC	1	

For more packaging information: https://logistics.volvo.com	Packaging reference no

Gross weight [kg]	Volume / unit [m^3]	Gross Volume [m^3]
14.412	0.06	

Notes

Number of V-EMB-750 boxes according to call-off quantity.

- Pack 112 parts in each V-EMB-750 plastic box.
- Place lid (V-EMB-751) on top of box.
- Place the boxes on a K-pallet (V-EMB-2).
- Maximum 4 boxes per layer and maximum 4 layers per pallet.
- Make sure to always fill an even layer, use empty boxes if necessary.
- Place a pallet lid (V-EMB-92) on the boxes.
- Secure the lid with two plastic straps.
- Label according to Volvo standard.

- Please refer to the Delivery Manual for further explanations.

Application date
CVA Plant

Part number
Description and supplier

Outer packaging material
Inner packaging material

Packing actions to perform

[1] Cab and Vehicle Assembly.

Ownership

- Standard Packaging (Volvo Emballage) is the property of Logistics Services, formerly known as Volvo Logistics.
- Dedicated Packaging (racks, bulk bins, and specific plastic pallets) is the ownership of Volvo GTO[1], if not stated otherwise contractually.
- The procurement of one-way packaging and consumption materials is under the supplier's responsibility. (e.g. plastic foam, VCI bags and paper,…)

The usage of Volvo standard packaging or special developments is

- Intended exclusively for material deliveries to Volvo plants.
- Intended to ensure safety and quality throughout the supply chain.
- Not intended for internal use. (e.g. batch production and long-term storage)
- Not intended to be used by sub-suppliers unless an agreement with Logistics Services is signed.

Dedicated Packaging Development and Maintenance

- Suppliers and Volvo both have a responsibility to identify if racks need to be cleaned and/or repaired.
- Racks need to be kept in clean environment or proper cleaning must take place at the Supplier's facility prior to usage.

Safety and ergonomic

- Packaging solutions must support a safe and efficient unpacking and handling of parts.
    - They must not require the use of a cutting tool otherwise agreed upon.
    - Parts must always be accessible without the need to tear apart the outer packaging.
    - Inner protections must be easy to open and to dispose of.
    - Multiple pallets must not be banded together in transit.
    - Shrink-wrapping is not allowed unless specified in a written packaging instruction.

[1] Group Trucks Operations

Quality

- Cleanliness requirements

  - Standard 107-0002 Components and systems.
  - Standard 107-0003 Audit of manufacturing processes.
  - Standard 399 Requirements on surface conditions with respect to rust.

- Parts must be delivered according to the specifications and drawing.

- Appropriate materials must be used to ensure the quality of the parts inside the packaging.

- Damaged packaging must never be used to deliver parts.

- For any deviations affecting the quality or safety linked to the Packaging Instruction, suppliers must immediately contact the Volvo Packaging Engineer.

The packaging solutions shall consider the transport conditions and offer sufficient protection to ensure that parts arrive in a ready-to-use conforming status.

Environmental Policy

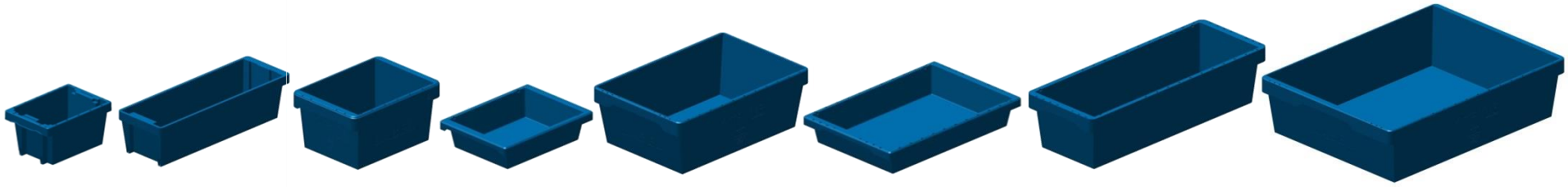
- Environmental care is a Volvo Group core value.
  Suppliers are expected and encouraged to contribute to this objective.

- Minimized environmental impact should be considered in the choice of Packaging and delivery solutions.

- Suppliers are expected to take active part in the specifications and improvements.

- Suppliers must report any issues to the Volvo Packaging Engineer.

Volvo standard and returnable blue boxes. (material = polypropylene)
Lids are not displayed. Weight limit for box + parts = 12.25 kg or 27 lbs.



V-EMB 500 V-EMB 600 V-EMB 750 V-EMB 757 V-EMB 780 V-EMB 787 V-EMB 800 V-EMB 840

Outer dimensions and weights

	MILLIMETERS			KG	M^3	INCHES			LBS	CUBIC IN	ON K0 PALLET (DEFAULT)		ON L0 PALLET	
V-EMB	LENGTH	WIDTH	HEIGHT	WEIGHT	VOLUME	LENGTH	WIDTH	HEIGHT	WEIGHT	VOLUME	PER LAYER	MAX LAYERS	PER LAYER	MAX LAYERS
500	300	200	150	0.45	0.01	11.81	7.87	5.91	0.99	549	8	3	16	3
600	600	200	150	0.77	0.02	23.62	7.87	5.91	1.70	1098	4	3	8	3
750	400	300	200	1.06	0.02	15.75	11.81	7.87	2.35	1465	4	4	8	4
757	400	300	100	0.74	0.01	15.75	11.81	3.94	1.63	732	4	4	8	4
780	600	400	200	2.05	0.05	23.62	15.75	7.87	4.52	2929	2	4	4	4
787	600	400	100	1.30	0.02	23.62	15.75	3.94	2.87	1465	2	4	4	4
800	800	300	200	2.05	0.05	31.50	11.81	7.87	4.52	2929	2	4	4	4
840	800	600	200	2.98	0.10	31.50	23.62	7.87	6.57	5858	1	4	2	4

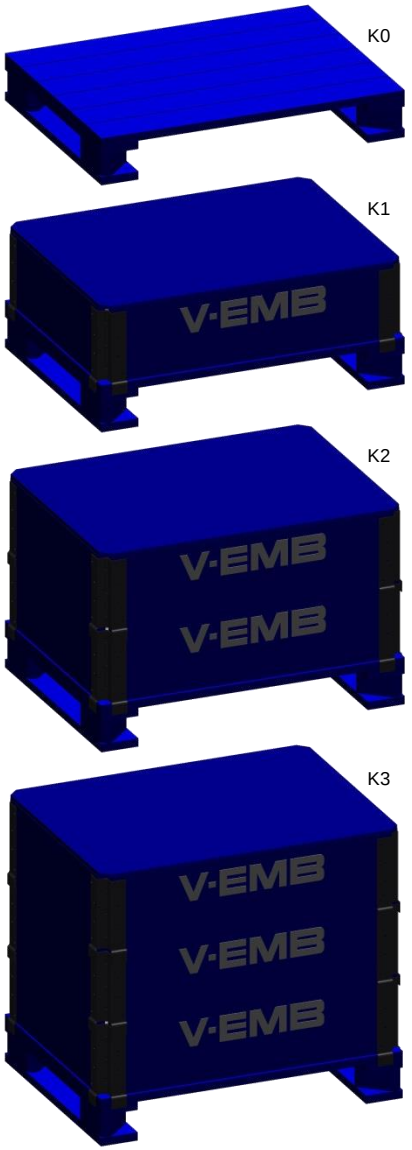
Inner dimensions and weights

	MILLIMETERS			KG	M^3	INCHES			LBS	CUBIC IN	ON K0 PALLET (DEFAULT)		ON L0 PALLET	
V-EMB	LENGTH	WIDTH	HEIGHT	WEIGHT	VOLUME	LENGTH	WIDTH	HEIGHT	WEIGHT	VOLUME	PER LAYER	MAX LAYERS	PER LAYER	MAX LAYERS
500	203	178	148	0.45	0.01	7.99	7.01	5.83	0.99	326	8	3	16	3
600	406	178	148	0.77	0.01	15.98	7.01	5.83	1.70	653	4	3	8	3
750	345	265	185	1.06	0.02	13.58	10.43	7.28	2.35	1032	4	4	8	4
757	345	265	85	0.74	0.01	13.58	10.43	3.35	1.63	474	4	4	8	4
780	537	362	185	2.05	0.04	21.14	14.25	7.28	4.52	2195	2	4	4	4
787	537	362	85	1.30	0.02	21.14	14.25	3.35	2.87	1008	2	4	4	4
800	745	265	185	2.05	0.04	29.33	10.43	7.28	4.52	2229	2	4	4	4
840	745	565	185	2.98	0.08	29.33	22.24	7.28	6.57	4752	1	4	2	4

***Note: Refer to packaging instruction for plant-specific pallet requirements**

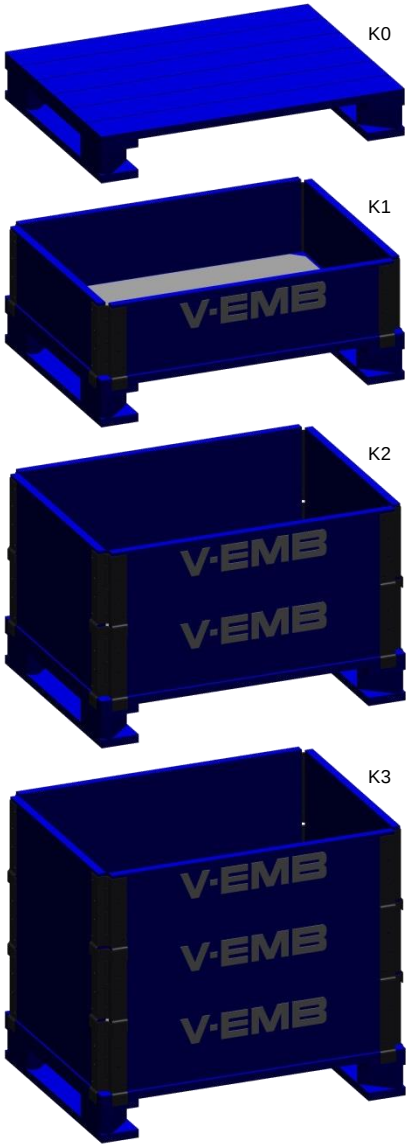
Volvo standard and returnable wooden Pallets and Combitainers: outer dimensions and weights.
These are the combinations of the most common Volvo standard packaging: (Volvo Group Packaging Instructions North America)

	MILLIMETERS			KG	M^3	INCHES			LBS	CUBIC IN
PALLETS	LENGTH	WIDTH	HEIGHT	WEIGHT	VOLUME	LENGTH	WIDTH	HEIGHT	WEIGHT	VOLUME
K0	820	615	126	11.00	0.06	32.28	24.21	4.96	24.25	3878
K1	820	615	330	21.50	0.17	32.28	24.21	12.99	47.40	10156
K2	820	615	525	28.50	0.26	32.28	24.21	20.67	62.83	16156
K3	820	615	720	36.00	0.36	32.28	24.21	28.35	79.37	22157
K4	820	615	915	43.50	0.46	32.28	24.21	36.02	95.90	28158
L0	1225	820	151	25.00	0.15	48.23	32.28	5.94	55.12	9256
L1	1225	820	355	41.00	0.36	48.23	32.28	13.98	90.39	21761
L2	1225	820	550	51.00	0.55	48.23	32.28	21.65	112.43	33714
L3	1225	820	745	61.00	0.75	48.23	32.28	29.33	134.48	45667
L4	1225	820	940	71.00	0.94	48.23	32.28	37.01	156.53	57620
F1	1630	1220	371	76.00	0.74	64.17	48.03	14.61	167.55	45022
F2	1630	1220	566	90.50	1.13	64.17	48.03	22.28	199.52	68685
F3	1630	1220	761	105.00	1.51	64.17	48.03	29.96	231.48	92349
F4	1630	1220	956	119.50	1.90	64.17	48.03	37.64	263.45	116012
G0	1445	820	151	32.00	0.18	56.89	32.28	5.94	70.55	10918
G1	1445	820	355	50.50	0.42	56.89	32.28	13.98	111.33	25669
G2	1445	820	550	61.50	0.65	56.89	32.28	21.65	135.58	39769
G3	1445	820	745	72.50	0.88	56.89	32.28	29.33	159.83	53869
G4	1445	820	940	83.50	1.11	56.89	32.28	37.01	184.08	67969
H0	1805	820	151	35.00	0.22	71.06	32.28	5.94	77.16	13639
H1	1805	820	355	57.00	0.53	71.06	32.28	13.98	125.66	32064
H2	1805	820	550	69.50	0.81	71.06	32.28	21.65	153.22	49677
H3	1805	820	745	82.00	1.10	71.06	32.28	29.33	180.78	67289
H4	1805	820	940	94.50	1.39	71.06	32.28	37.01	208.33	84902
701	2400	820	151	47.00	0.30	94.49	32.28	5.94	103.62	18134
701-1	2400	820	358	78.00	0.70	94.49	32.28	14.09	171.96	42994
701-2	2400	820	553	92.00	1.09	94.49	32.28	21.77	202.82	66412
701-3	2400	820	748	106.00	1.47	94.49	32.28	29.45	233.69	89831
701-4	2400	820	943	120.00	1.86	94.49	32.28	37.13	264.55	113249
724	2800	1140	175	72.00	0.56	110.24	44.88	6.89	158.73	34088
724-1	2800	1140	375	88.00	1.20	110.24	44.88	14.76	194.00	73045
724-2	2800	1140	575	104.00	1.84	110.24	44.88	22.64	229.28	112003
724-3	2800	1140	775	120.00	2.47	110.24	44.88	30.51	264.55	150961
724-4	2800	1140	975	136.00	3.11	110.24	44.88	38.39	299.83	189918
C419	1630	1220	1382	116.50	2.75	64.17	48.03	54.41	256.84	167708
C422	1630	1220	1582	121.50	3.15	64.17	48.03	62.28	267.86	191979
C814	2270	1450	1176	198.00	3.87	89.37	57.09	46.30	436.51	236211



Volvo standard and returnable wooden Pallets and Combitainers: inner dimensions and weights.
These are the combinations of the most common Volvo standard packaging:

	MILLIMETERS			KG	M^3	INCHES			LBS	CUBIC IN
V-EMB	LENGTH	WIDTH	HEIGHT	WEIGHT	VOLUME	LENGTH	WIDTH	HEIGHT	WEIGHT	VOLUME
K0	-	-	-	11.00	-	-	-	-	24.25	-
K1	773	568	183	21.50	0.08	30.43	22.36	7.20	47.40	4903
K2	773	568	378	28.50	0.17	30.43	22.36	14.88	62.83	10128
K3	773	568	573	36.00	0.25	30.43	22.36	22.56	79.37	15353
K4	773	568	768	43.50	0.34	30.43	22.36	30.24	95.90	20577
L0	-	-	-	25.00	-	-	-	-	55.12	-
L1	1178	773	183	41.00	0.17	46.38	30.43	7.20	90.39	10169
L2	1178	773	378	51.00	0.34	46.38	30.43	14.88	112.43	21005
L3	1178	773	573	61.00	0.52	46.38	30.43	22.56	134.48	31840
L4	1178	773	768	71.00	0.70	46.38	30.43	30.24	156.53	42676
F0	-	-	-	-	-	-	-	-	-	-
F1	1583	1173	183	76.00	0.34	62.32	46.18	7.20	167.55	20736
F2	1583	1173	378	90.50	0.70	62.32	46.18	14.88	199.52	42832
F3	1583	1173	573	105.00	1.06	62.32	46.18	22.56	231.48	64928
F4	1583	1173	768	119.50	1.43	62.32	46.18	30.24	263.45	87024
G0	-	-	-	-	-	-	-	-	-	-
G1	1403	773	183	50.50	0.20	55.24	30.43	7.20	111.33	12111
G2	1403	773	378	61.50	0.41	55.24	30.43	14.88	135.58	25017
G3	1403	773	573	72.50	0.62	55.24	30.43	22.56	159.83	37922
G4	1403	773	768	83.50	0.83	55.24	30.43	30.24	184.08	50827
H0	-	-	-	-	-	-	-	-	-	-
H1	1758	773	183	57.00	0.25	69.21	30.43	7.20	125.66	15176
H2	1758	773	378	69.50	0.51	69.21	30.43	14.88	153.22	31346
H3	1758	773	573	82.00	0.78	69.21	30.43	22.56	180.78	47517
H4	1758	773	768	94.50	1.04	69.21	30.43	30.24	208.33	63688
701	-	-	-	-	-	-	-	-	-	-
701-1	2358	773	183	78.00	0.33	92.83	30.43	7.20	171.96	20355
701-2	2358	773	378	92.00	0.69	92.83	30.43	14.88	202.82	42045
701-3	2358	773	573	106.00	1.04	92.83	30.43	22.56	233.69	63735
701-4	2358	773	768	120.00	1.40	92.83	30.43	30.24	264.55	85425
C400	1575	1170	1178	-	-	62.01	46.06	46.38	-	-
C419	1575	1170	1178	116.50	2.17	62.01	46.06	46.38	256.84	132468
C422	1575	1170	1378	121.50	2.54	62.01	46.06	54.25	267.86	154958
C814	2154	1400	978	198.00	2.95	84.80	55.12	38.50	436.51	179975



A Volvo returnable divider must always be placed at the bottom of the pallet when frames/sides are used.

Getting Started

The usage of Volvo packaging is restricted to companies registered in the Volvo Group Logistics Services Portal. Suppliers can start to order Volvo Standard Packaging via the integrated LES application when the following process is completed:

- New Input form (or Nii case) is submitted by the Volvo Packaging Engineers.
- User information spreadsheet is completely filled in by the supplier.
- Credit rating of the supplier is approved by Logistics Services.
- User contract is signed by the supplier and returned to Logistics Services.
- Start date is confirmed by Logistics Services.
- User alias and password are provided.
- Self-learning Program and tests are completed successfully. (interactive videos)

    - User Handbook - VGLS Terms conditions
      Description of the roles and responsibilities to request and control packaging.
    - User Guide - Logistics Services Packaging System
      Additional explanations.

Volvo Group Logistics Services Portal
https://logistics.volvo.com

The Portal is very well documented for everyone wishing to learn more about the intents and purposes.

LES stands for Logistics Enterprise Solution, which is a SAP based system with a modern user interface.

Side notes on Logistics Services behalf

- Live training sessions can be scheduled to help suppliers place the first order of material.
- If a supplier wishes to use Volvo packaging to ship material to non-Volvo company, the latter must also sign a contract with Volvo Group Logistics Services.
  This procedure is designed to ensure an efficient tracking of inventory levels.

Useful functional email addresses

cmsservices@volvo.com		New password to the Portal
napackaging@volvo.com		Packaging Orders
adm.vlna.inventorycontrol@volvo.com		Inventory and stock issues System knowledge, rental, invoice matters, Passwords, Logistics Data Maintenance
denise.nrv.addison@volvo.com	+1 (540) 674-2215	NRV Packaging Analyst
gregory.corvin@volvo.com	+1 (540) 674-7227	NRV Packaging Engineer
function.lvo.packaging@volvo.com		LVO Packaging Concerns

Temporary Packaging

Temporary packaging must first be approved by the CVA Plant using the Deviation Template, which is mandatory for all packaging deviations and is kept on the supplier portal:

Supplier Name:		PARMA		Receiving Plant	
Requestor		Contact Email			

Packaging Temporary Deviation

Item	Description	Comments
Packaging not delivered on time	Order # 123	We need packaging for this weeks delivery

PNs Effected	Proposed Outer Packaging	Proposed PK	Length	Width	Height	Weight	Picture (If Available)

Receiving Plant Approval

Department	Signature	Date
Material Control		
Packaging Engineer		

Application date
CVA Plant

Root Cause

Deviation Details

Approval

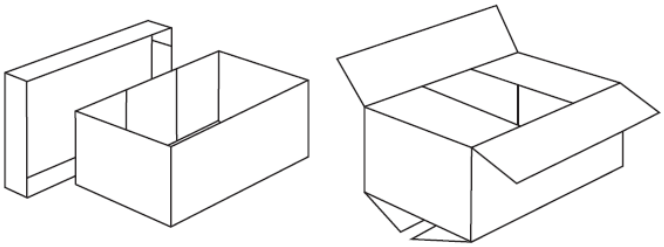
The main guidelines are:

- Alternative packaging must closely match serial production dimensions.
- It must be appropriate for transportation.
- It must ensure the quality of the parts as well as the safety of the operators handling it.
- The part quantities must be the same as the serial packaging.
- If the chosen option is made out of cardboard:
  - Small boxes must follow each CVA plant requirements (lid or flaps).
  - Pallet-size boxes must have a lid for ergonomics.

Industry standard templates for corrugated cardboard can be found on the following website:

FEFCO ESBO Code
http://www.fefco.org/technical-documents/fefco-esbo-code

FEFCO
European Federation of Corrugated Board Manufacturers



Air and Express Freight

- Additional packaging precautions must apply.
- In order to guarantee a mint quality upon arrival, please secure the parts whether they are in a cardboard, plastic box or a pallet.
- Rough handling conditions throughout the supply chain and vibrations in the air must be neutralized as much as possible.
- The usage of additional filling material is highly recommended, especially for costly components. The extra protection must be easy to remove and in compliance with our Environmental policy. (recyclable)

Do not hesitate to send pictures to your Packaging Engineer contact prior to any shipment.

Charge-Back Policy

Any deviation from the packaging instruction could result in a charge-back for non-compliance. Additionally, this will be noted in an Inspection Report and ultimately in the Supplier Scorecard. Items that will affect the amount of the charge back are:

- Amount of time for repack
- Administrative fee
- Number of containers affected
- Impact to Line or assembly functionality (e.g. shutting the facility down)

This list is only representative of the various items that would affect the amount of a charge-back. Additional items can apply depending on the packaging deviation.

Labeling specifications

All deliveries **MUST** be marked with a Volvo approved transport label.
The use of the Volvo transport label is described in detail in the manual.

It is important that all fields on the label are filled in and that no other label then the Volvo approved transport label is on the pallet. All information is also available at:

Link To Volvo Label specifications

Important! *All consolidated pallets e.g. a sequence delivery, several part numbers in the same pallet, have to be marked with all labels covering the content (packing list).* Placement of Goods Labels. Pallets with plastic boxes must be provided with labels on the plastic boxes and a Master or a Mixed labels. Please see Label specification for details. All the different unique package identities on both S and Master or Mixed label shall be provided in the ASN.

Placement of the Volvo approved transport label/goods label, which identifies the goods, is extremely important for proper handling of goods. All placements of labels must be described below:

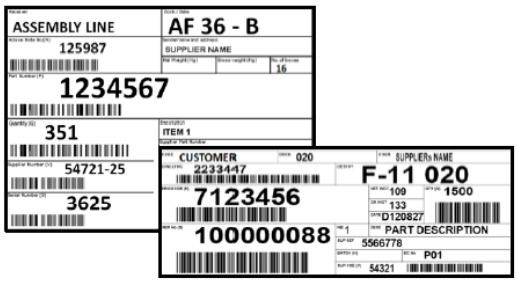
Racks and Combitainers	Always put the label in the label holder, marking plate.
Plastic Boxes and Wooden Pallets	Goods labels for individual boxes are to be placed in the designated space (not on any other part of the box or lid). Only paper labels with semi-permanent adhesive must be used. (must be easy to remove at least 3 months after being attached). Staples, label holders, tape or any other sticky labels may not be applied in any circumstances. The master label must be placed in a label holder, preferably on the bottom left hand corner. Label holders (EMB-153) can be purchased from VGLS Packaging or independently.
Straps and Plastic Tarps	When using straps to secure pallets/racks or other covering to protect the goods ensures that all labels are clearly and completely visible. Do not put staples in the bar code area, staples interfere with scanners. Do not in any circumstances put staples in plastic boxes.
Other Labeling	All labels other than the Volvo approved transport label must be removed before the goods leave your premises. In general, only one Volvo approved transport label per pallet is allowed (exception: sub-packages e.g. Blue boxes).

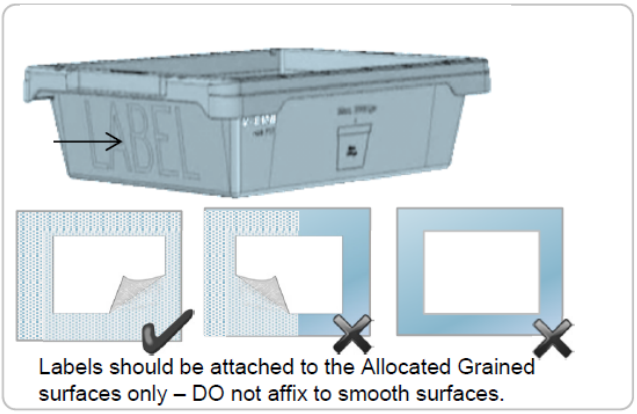
VOLVO

PACKING INSTRUCTION
Labels / Adhesive Spec (Plastic Boxes)

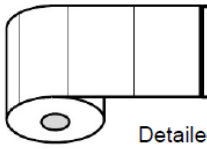
VOLVO
FORM NUMBER
QAP 010B

The use of additional Staples, Tapes, wire, String or similar fastenings are not suitable





Labels should be attached to the Allocated Grained surfaces only – DO not affix to smooth surfaces.



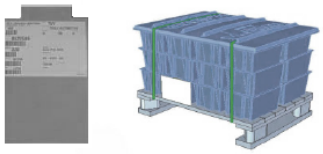
LABEL SPECIFICATION

Detailed specifications can Vary depending on your customer .(See table)

However VGLS have a few basic requirements:

- NON PERMANENT ADHESIVE (Removable)
- RESIDUE FREE BOX AFTER USE
- PEEL-ABLE (In One Piece)
- STICK ON GRAINED SURFACES

LABEL HOLDERS



EMB 9900000153 Card label holder
Can be used to label the bundle of Boxes

TABLE

MATERIAL	DATA	VALUES
Frontal	Weight	70g/m²
	Thickness	90 µm
	Opacity	92 %
	Whiteness	98 %
	Roughness	5.0 microns
	Printable	Ink jet, laser and photocopier, flexography, typo, offset and screen printing
	Limit of preservation:	Preservation 2 years at room temperature (20 °C), RH 50 % in the original packing and shielded from the light
	Traction resistance SM	5.2 kN/m
	Traction resistance ST	2.2 kN/m
	Rigidity direction machine	0.28 mNm
	Rigidity direction across	0.10 mNm
Adhesive	Immediate adhesion (Tack) min	14 N
	Cutting resistance min	2.0 H
	Lopp Tack on PE min	10N
	Temperature of application min	5 °C
	Temperature of use min	-20 °C
	Temperature of use max	100 °C
	More Information	Food contact certificate n°22048 U 05
Backing	Weight	52 g/m²
	Thickness	55 µm
	Traction resistance SM	4.8 kN/m
	Traction resistance ST	1.8 kN/m

ADDITIONAL LABELS & DOCUMENT HOLDERS

The same criteria applies to any other non Odette label/s that are added to VGLS Pool Packaging –These should be kept to a minimum & tested for ease of removal prior to use. Document holders should not be stuck on the Boxes !

Please note: The above are for guidance

If you wish to discuss these specifications please contact VGLS or you Customer contact.

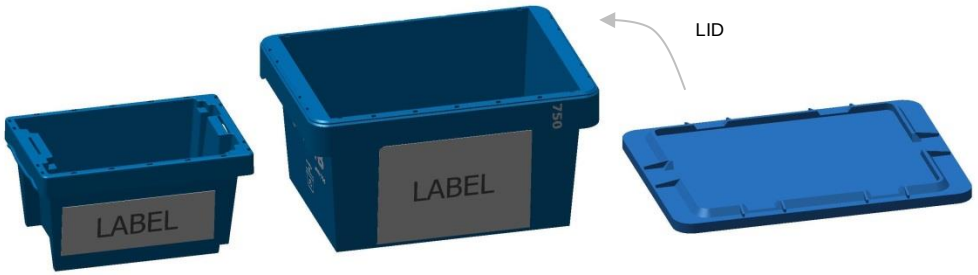
Vlc.Emb.Inspectors@volvo.com

Standard
Paper sizes may vary depending on the region of the world.

- OTL.3 (ETI.9) for the packaging with a dedicated label area which is less than 150 mm or 5.9 inches high.
- OTL.1 (ETI.1) for all the other packaging and the master label.

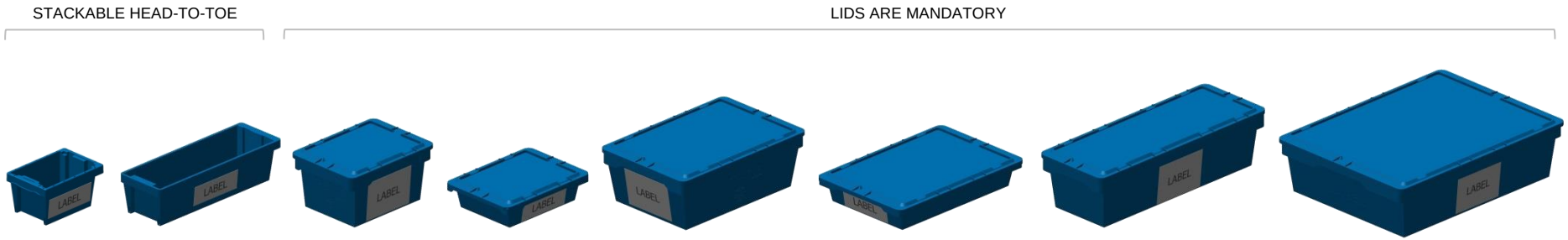
- Each packaging unit must have one single label.
- Each handling unit must have a master label, clearly stating the number of packages on the pallet.

- Lids must remain free of information and tape.



	INDIVIDUAL LABEL		CENTERED POSITION		
V-EMB	OTL1	OTL3	SHORT SIDE	LONG SIDE	QUANTITY
500		x		x	1
600		x		x	1
750	x			x	1
757		x		x	1
780	x		x		1
787		x	x		1
800	x			x	1
840	x			x	1

Examples with Volvo blue boxes

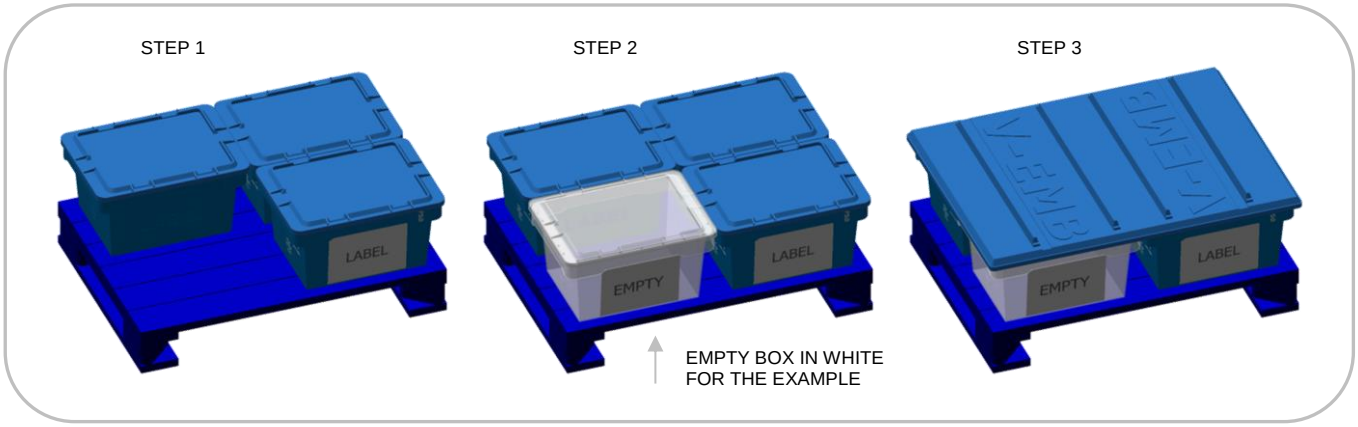


Stackability and Transport Efficiency

Suppliers must pack blue boxes according to the following guidelines to guarantee safety throughout the supply chain, facilitate the handling, and optimize the stackability and transport.

- Empty boxes must be used to complete a layer and must be labeled as such.
- The appropriate lid must be used on top of the pallet to secure the load.

Example with three V-EMB 750 blue boxes to pack. Four can fit per layer on a K0 pallet.

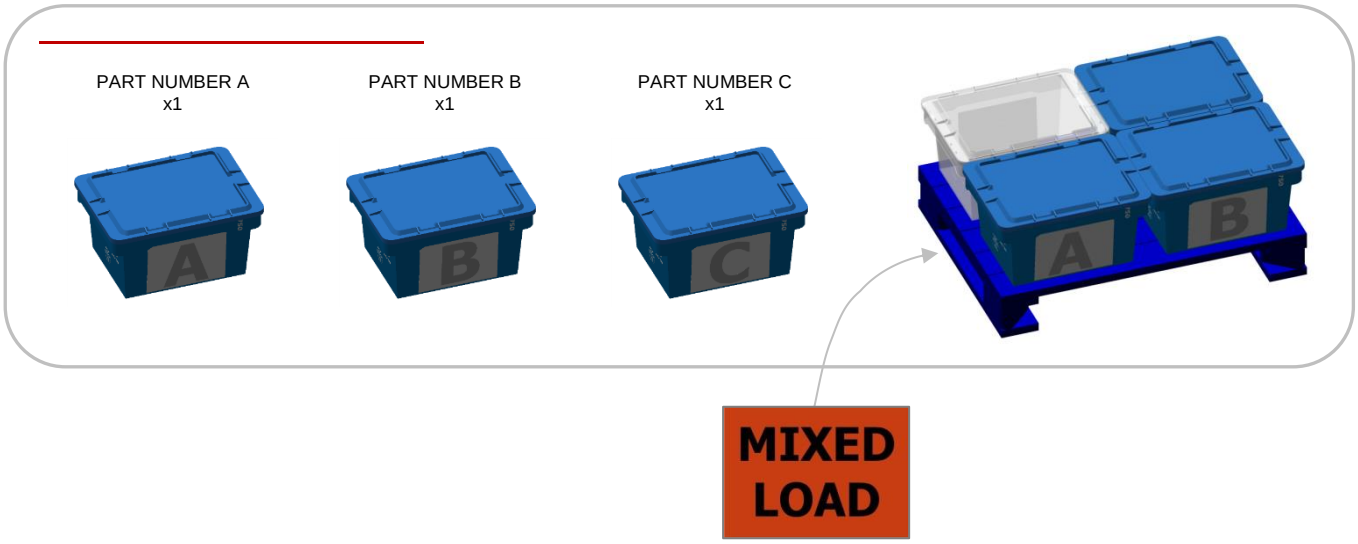


There are two possibilities to build boxes on a pallet, which depend on the flow and the CVA plant.

Heterogeneous Pallets (different part numbers on the pallet)

All the part numbers with less than a full layer of boxes must be gathered on the same pallet, according to the delivery gate.

- Part numbers for different destinations, suffixes, delivery gates must not be mixed on the same pallet.
- A mixed load label must be pasted to the side of the delivery load.

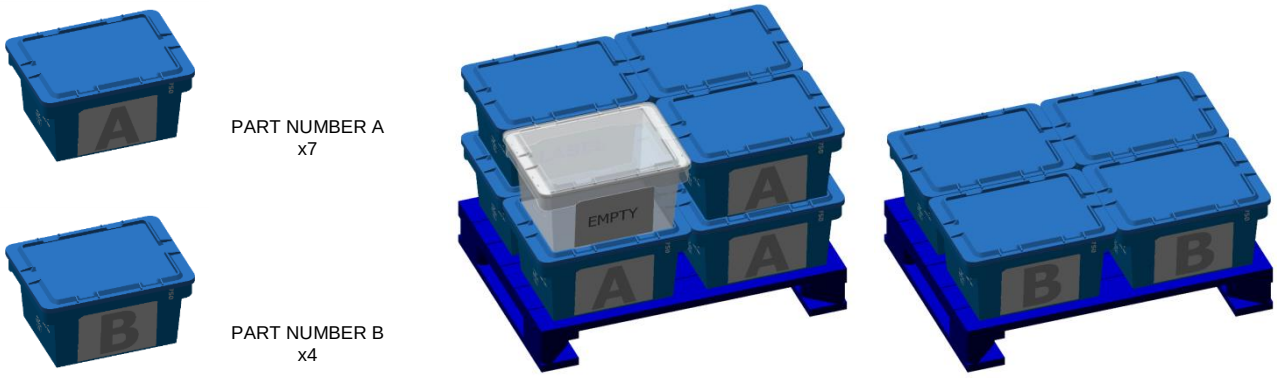


Each heterogeneous delivery load must have a mixed load label that does not cover Volvo approved shipping or master label.

Homogeneous Pallets (same part number on the pallet)

When there is at least a full layer of boxes to deliver for a given part number and a given gate, the pallet must not contain any other part number.

The maximum quantity of pieces per handling unit is defined in the Packaging Instructions and must be respected.

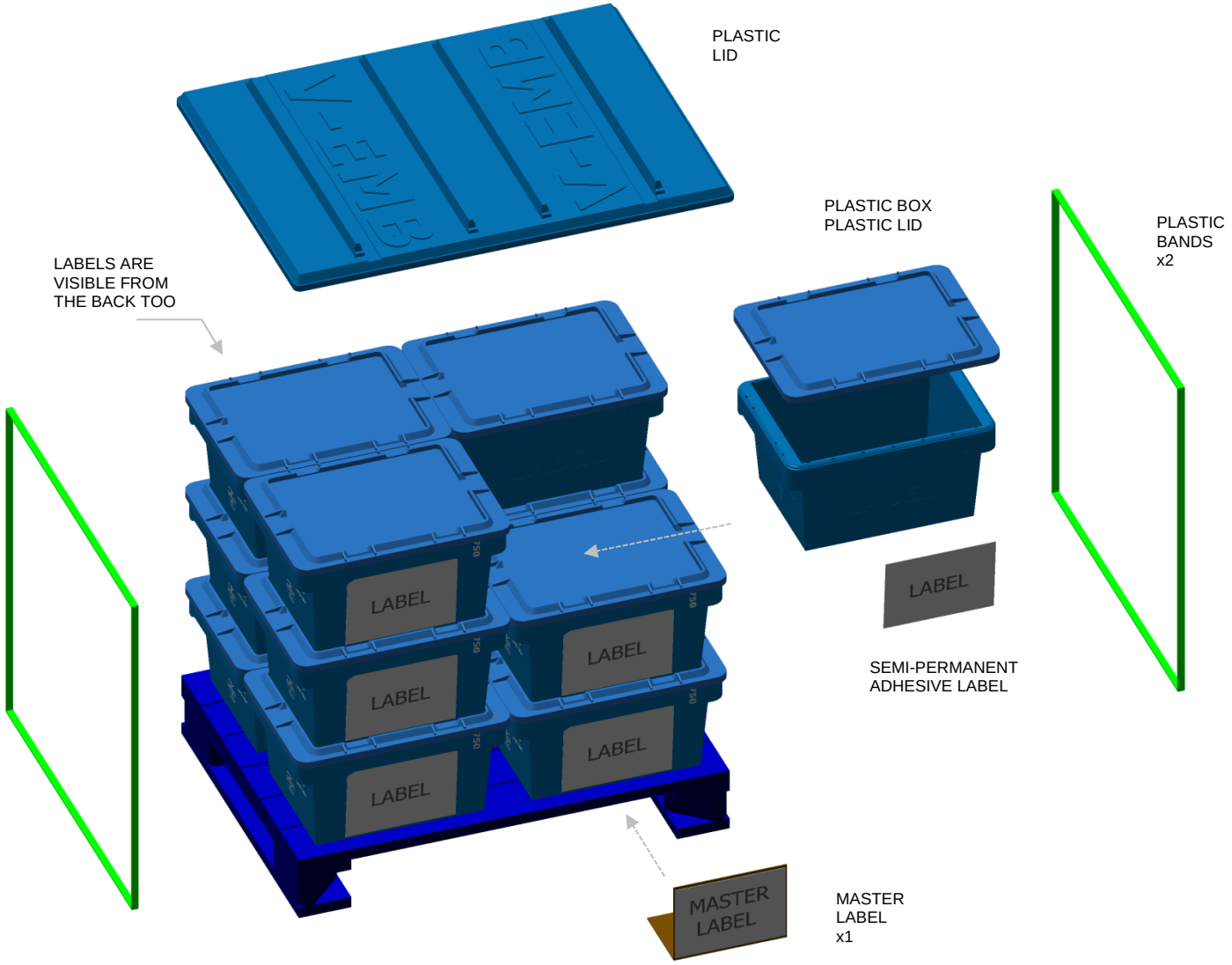


Miscellaneous

When using straps to secure pallets, racks, or covers, please make sure the labels are kept completely clear, as to not interfere with scanners. Check list:

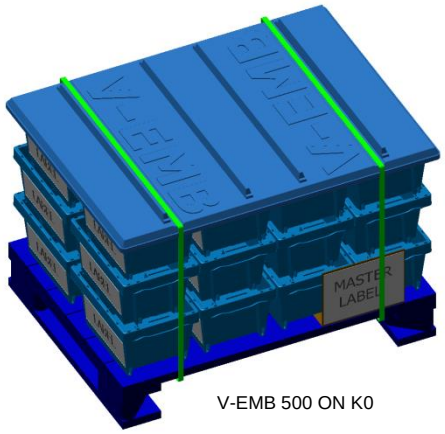
- Are labels perfectly readable?
- Are staples removed from boxes and cardboard?
- Are there any staples on the bar codes?
- Is the dock or gate information correct?

Delivery Unit with blue boxes
Example with three layers on a K0 pallet.

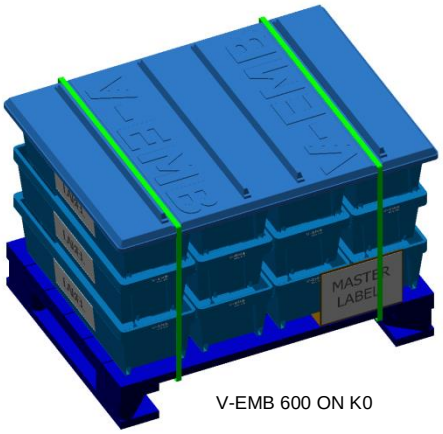


Delivery Unit with blue boxes
Examples with three layers on a K0 pallet.

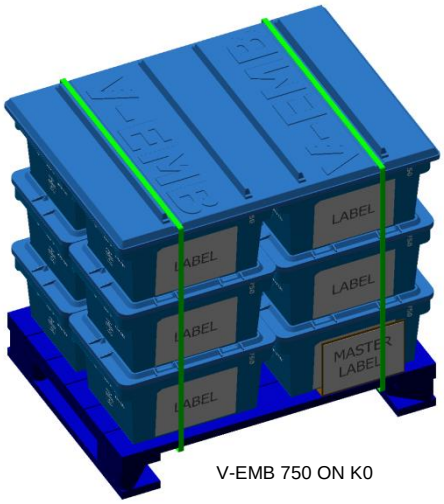
Refer to the Packaging Instructions for plant-specifc pallet requirements.
Plastic bands must never cover the bar codes on the master label.



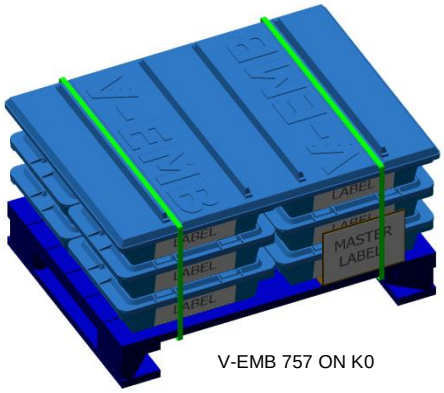
V-EMB 500 ON K0



V-EMB 600 ON K0

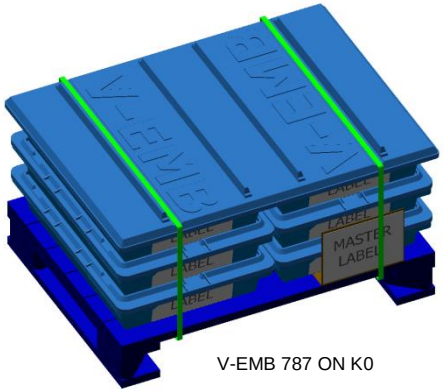


V-EMB 750 ON K0

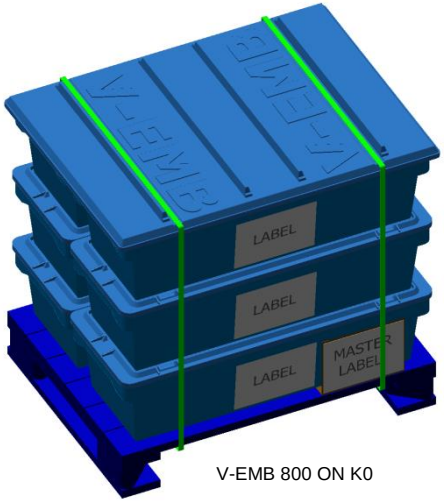


V-EMB 757 ON K0

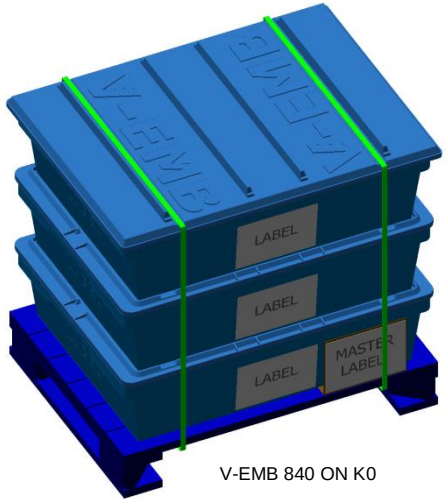
V-EMB 780 ON K0



V-EMB 787 ON K0



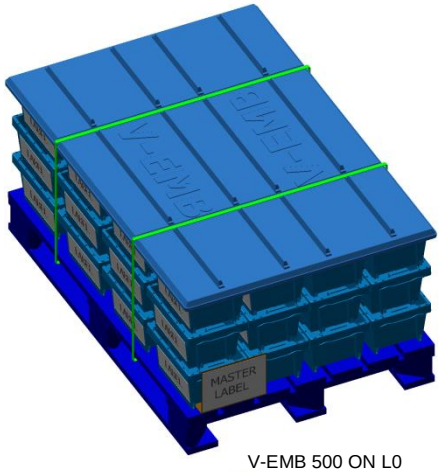
V-EMB 800 ON K0



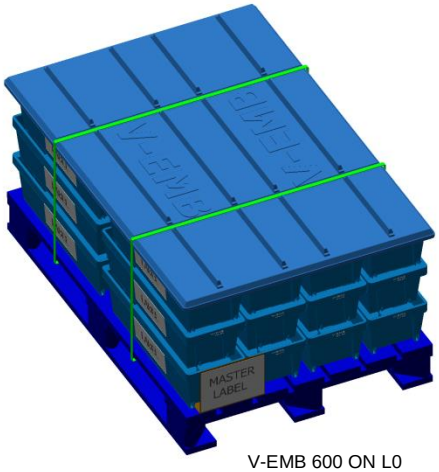
V-EMB 840 ON K0

Delivery Unit with blue boxes
Examples with three layers on a L0 pallet.

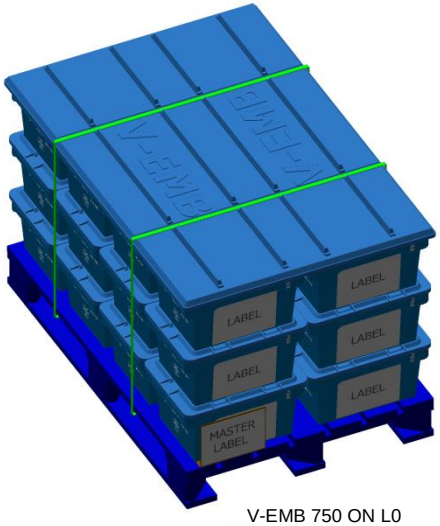
Refer to the Packaging Instructions for plant-specific pallet requirements.



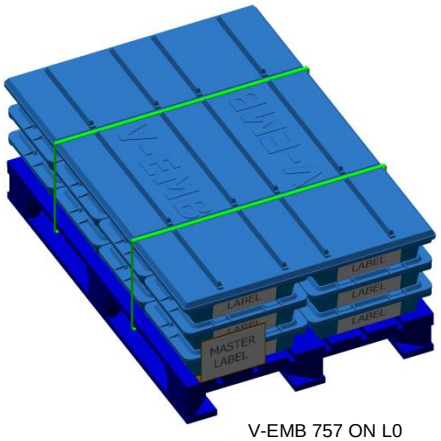
V-EMB 500 ON L0



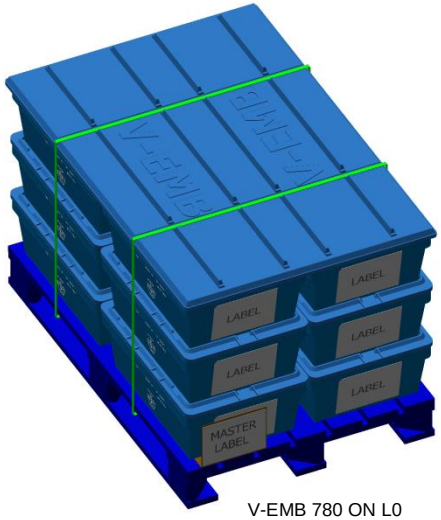
V-EMB 600 ON L0



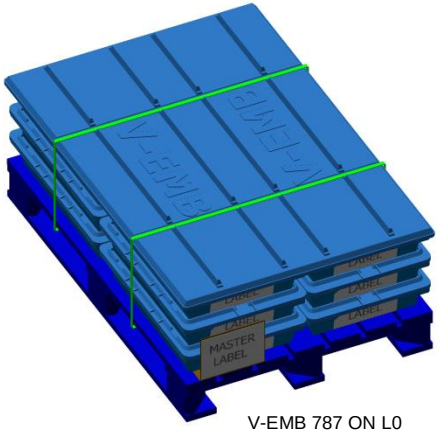
V-EMB 750 ON L0



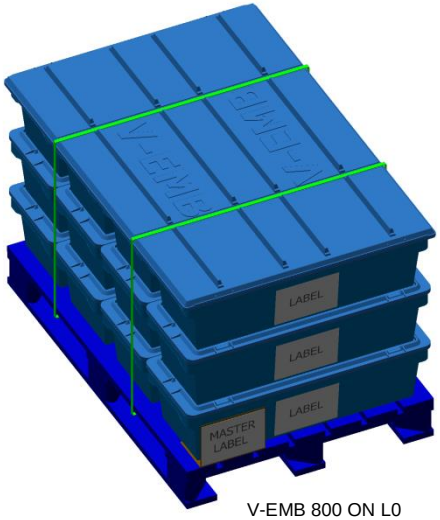
V-EMB 757 ON L0



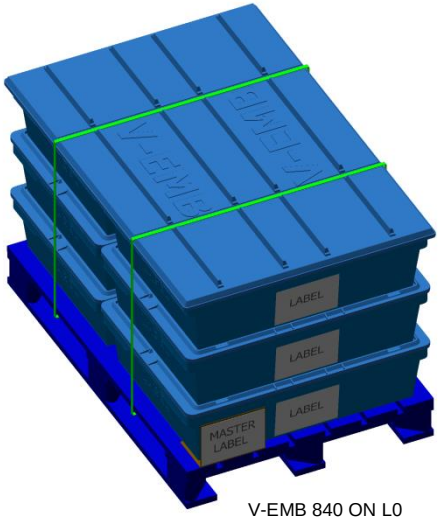
V-EMB 780 ON L0



V-EMB 787 ON L0



V-EMB 800 ON L0

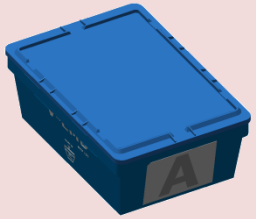


V-EMB 840 ON L0

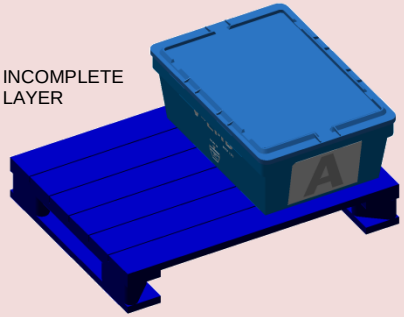
Common mistakes

Example with V-EMB 780 blue boxes to pack. Two can fit per layer on a K0 pallet.

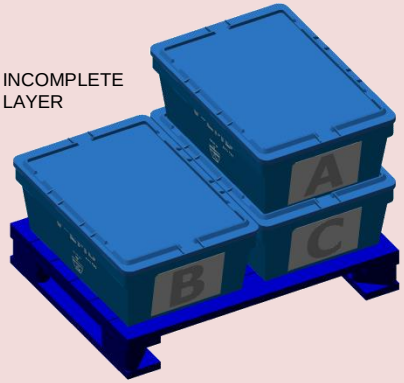
SINGLE BOX

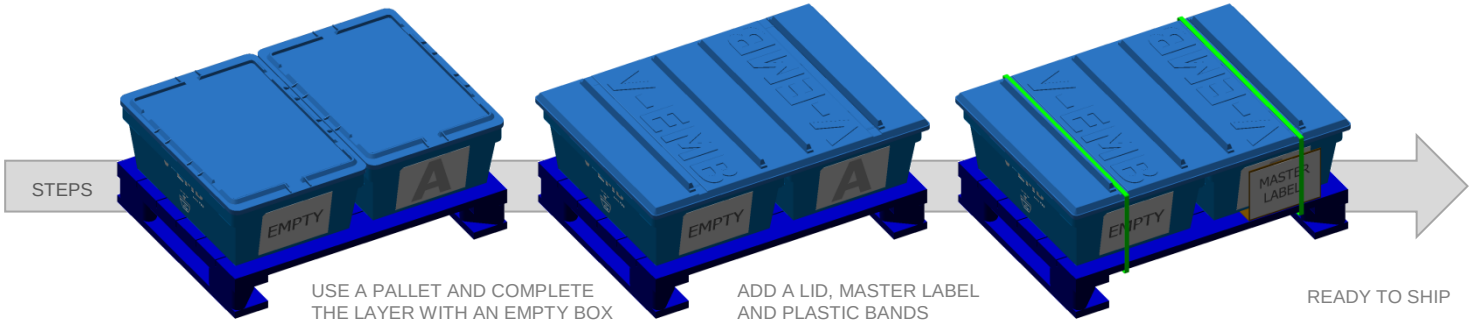


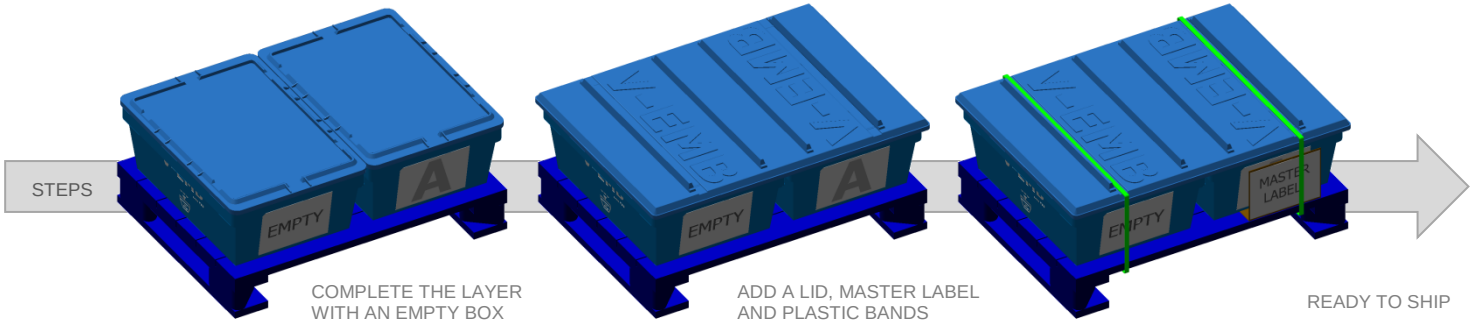
INCOMPLETE LAYER



INCOMPLETE LAYER

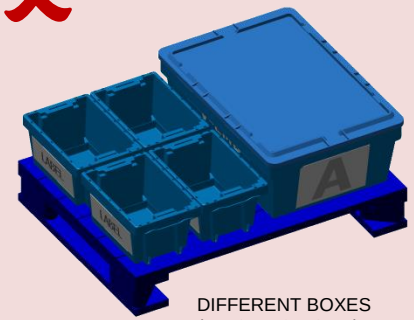






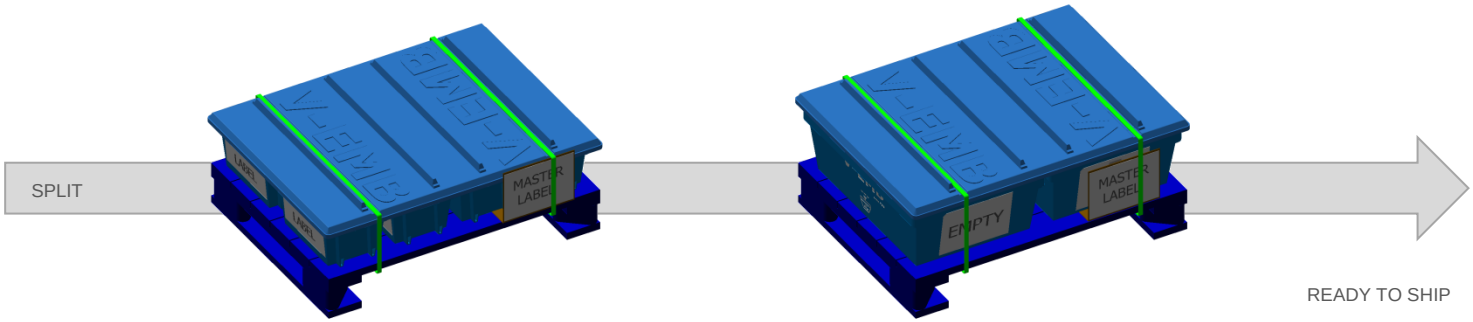
Common mistakes

Example with V-EMB 780 blue boxes to pack. Two can fit per layer on a K0 pallet.

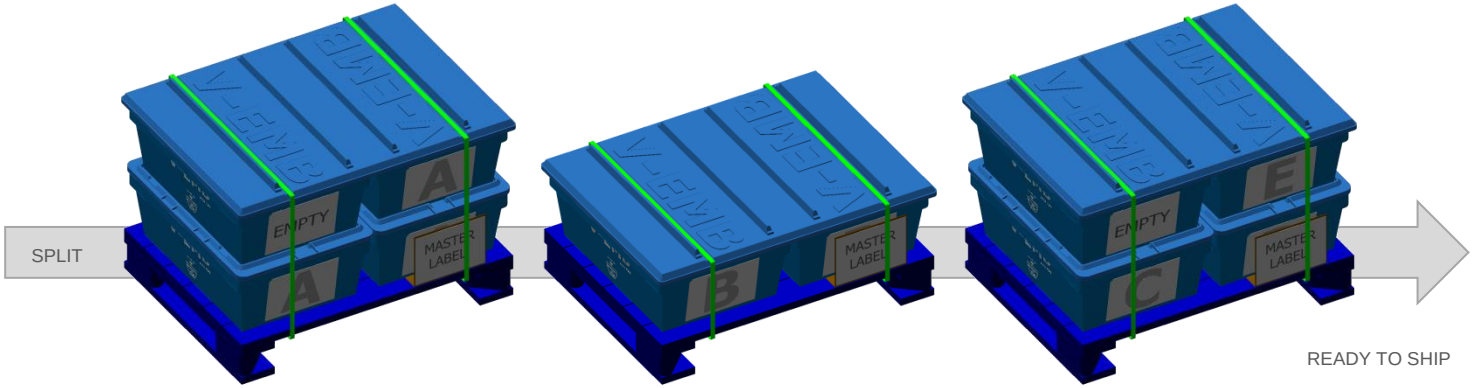


DIFFERENT BOXES
(HEIGHT OR SIZE)
MUST NOT BE GROUPED
OR STACKED TOGETHER
ON THE SAME PALLET

THERE IS AT LEAST ONE
COMPLETE LAYER FOR
PART NUMBERS “A” AND “B”
THEY MUST BE PACKED ON
A HOMOGENEOUS PALLET



ORGANIZE THE BOXES ON DEDICATED PALLETS.
USE EMPTY BOXES IF NEEDED TO COMPLETE LAYERS



REGROUP THE THREE “A” BOXES AND USE AN
EMPTY ONE TO COMPLETE THE TOP LAYER

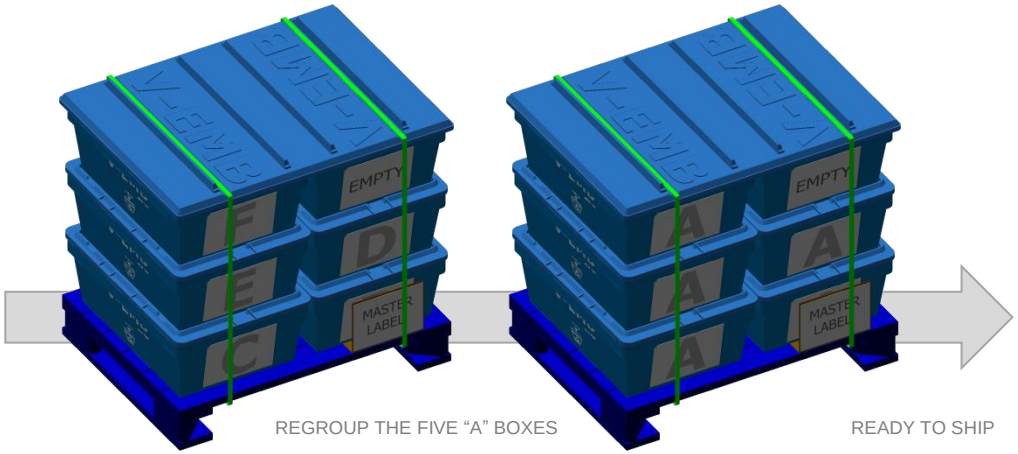
REGROUP THE TWO “B” BOXES

REGROUP THE “C”,”D” AND “E” BOXES

Common mistakes

Example with V-EMB 780 blue boxes to pack. Two can fit per layer on a K0 pallet.

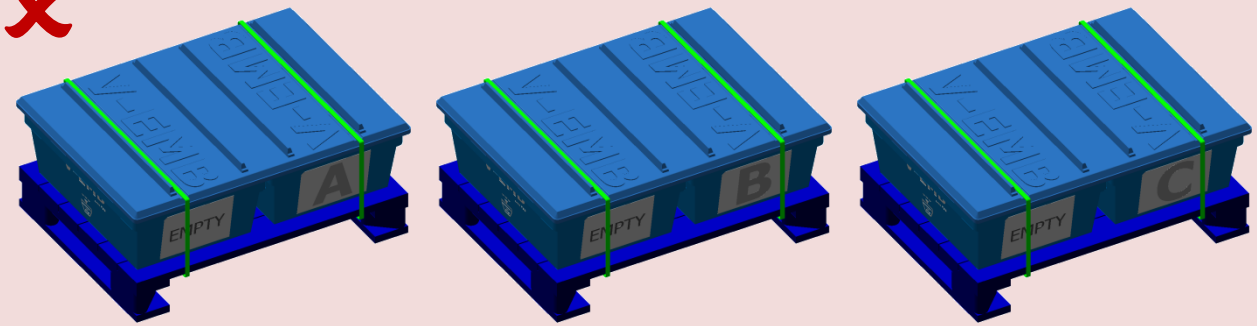
PART NUMBER “A” GOES ON A HOMOGENEOUS PALLET
AND ALL THE BOXES MUST BE CONSOLIDATED

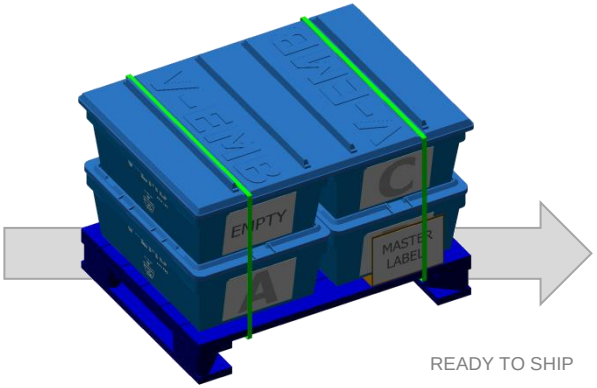


REGROUP THE FIVE “A” BOXES

READY TO SHIP

ALL THE PART NUMBERS WITH LESS THAN A FULL LAYER OF BOXES MUST BE GATHERED ON THE SAME PALLET

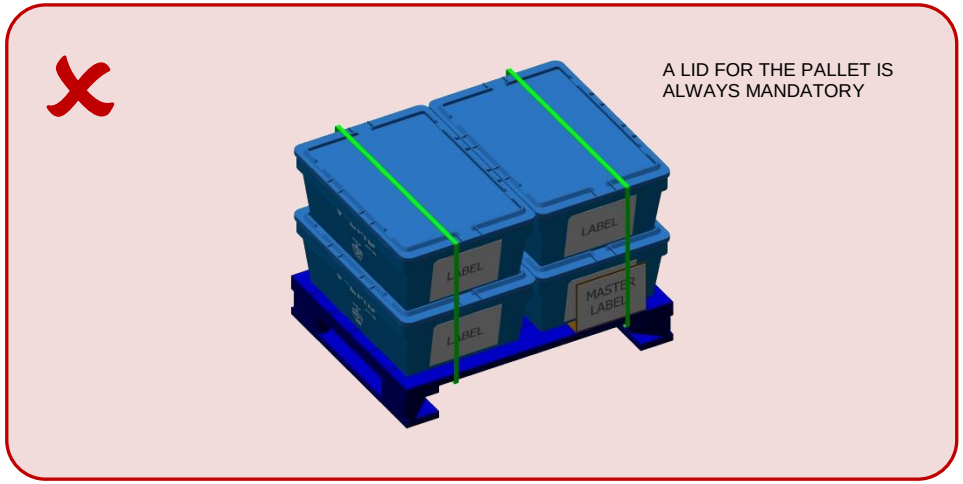


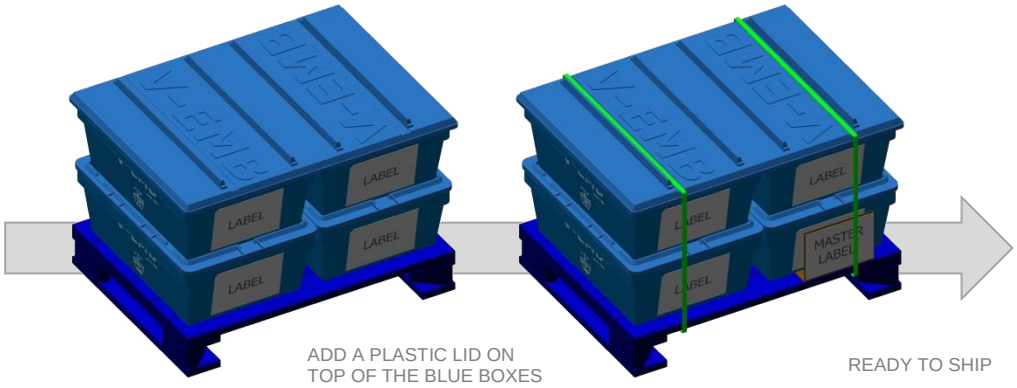


READY TO SHIP

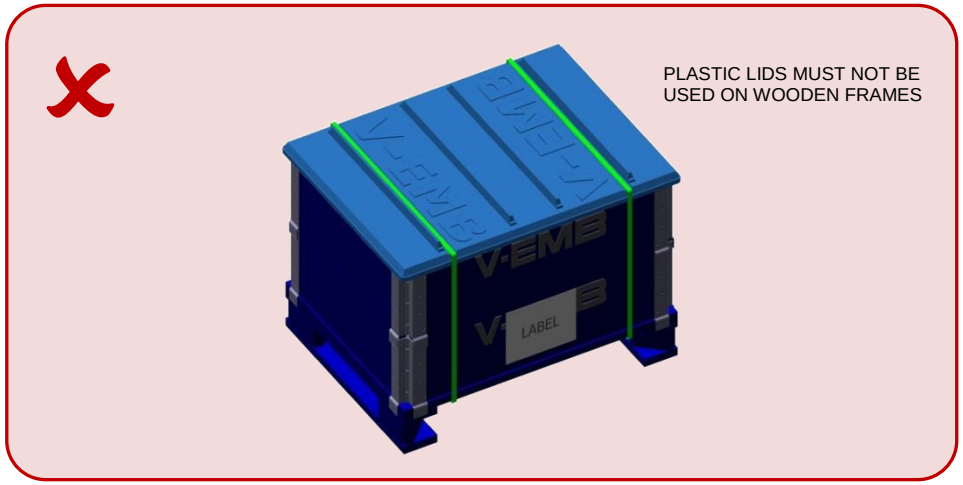
Common mistakes

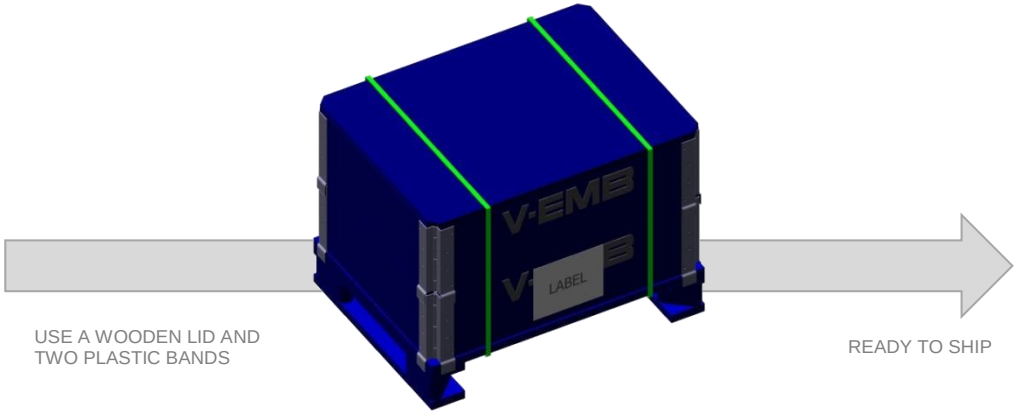
Example with V-EMB 780 blue boxes to pack. Two can fit per layer on a K0 pallet.





Example with a K2 pallet.

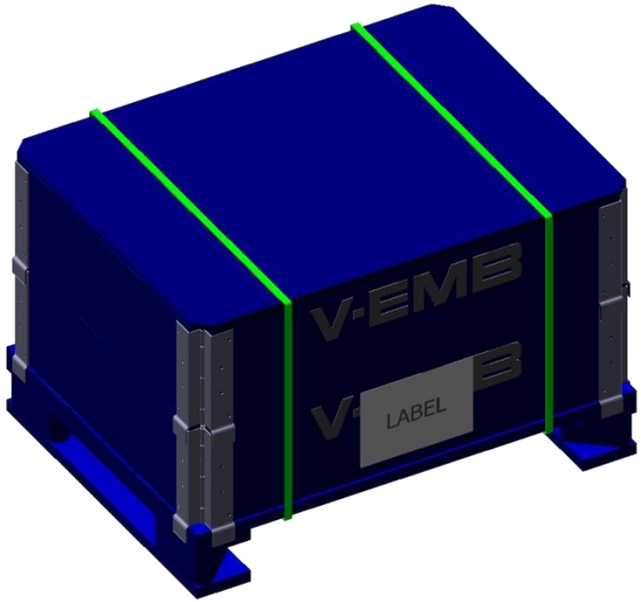


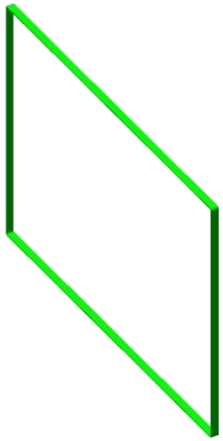


Delivery Unit with pallets
Examples with two frames

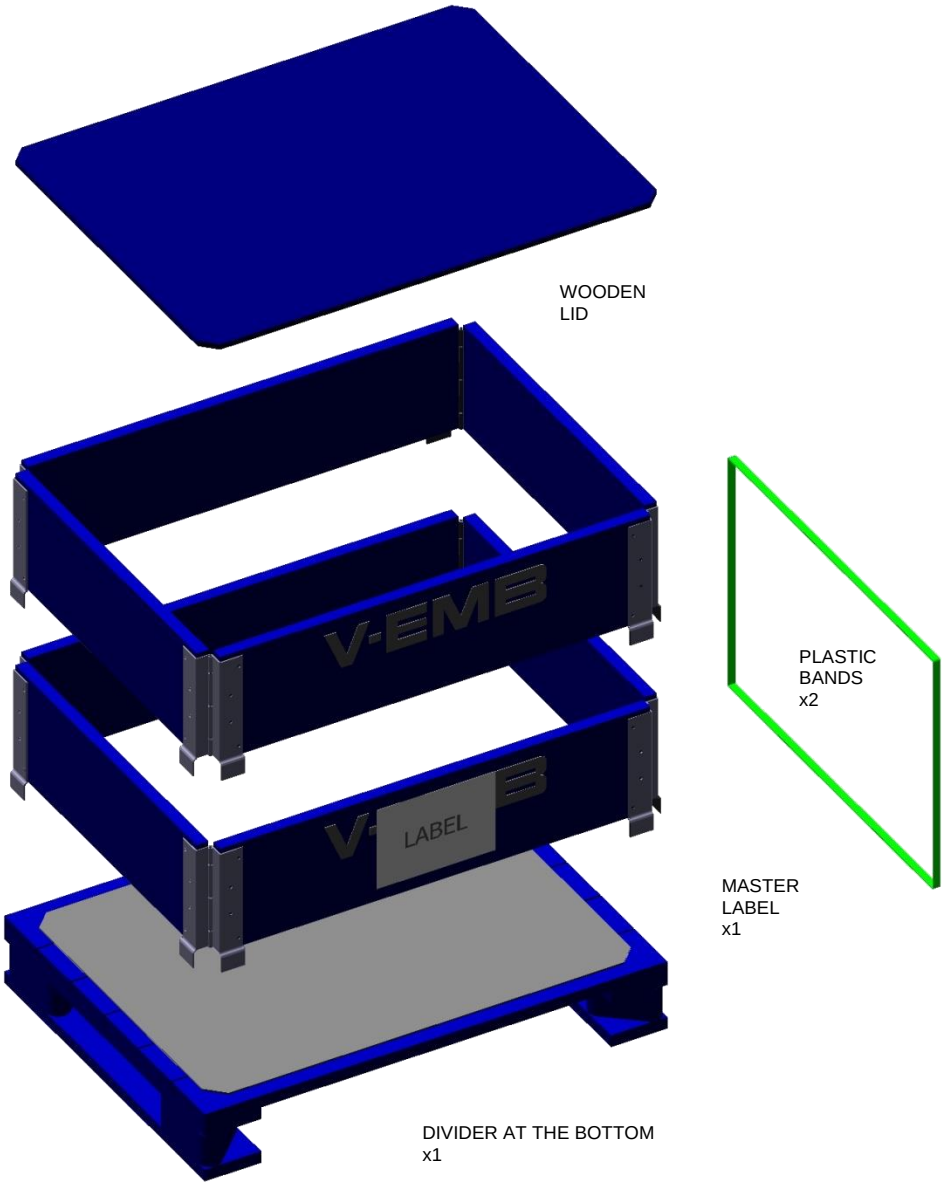
- Labels must always be placed on the lowest portion of the package.
- Labels must be placed on the left-hand side of the lowest frame*.
  (on the handling side of the pallet)
- Two plastic bands are required for each container.

* Exception for the K pallet:
The label is placed in the center of the lowest frame.





SEMI-PERMANENT
ADHESIVE LABEL



WOODEN
LID

HINGES

PLASTIC
BANDS
x2

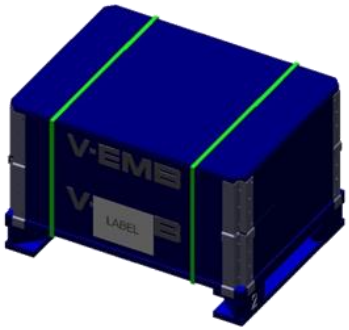
MASTER
LABEL
x1

DIVIDER AT THE BOTTOM
x1

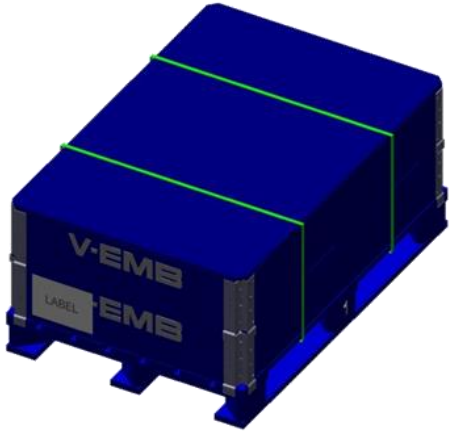
VOLVO

Delivery Unit with pallets

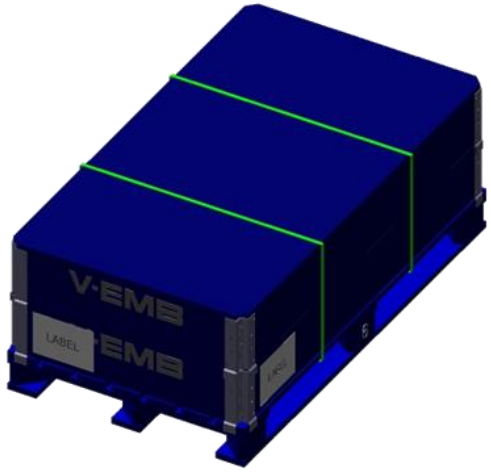
Examples with two frames/sides.



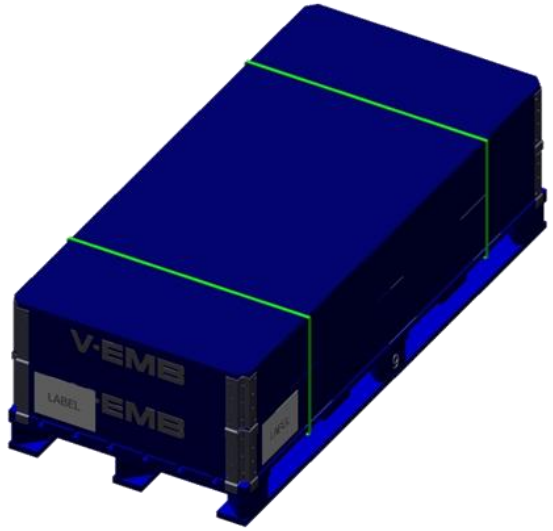
K2 PALLET
1 LABEL



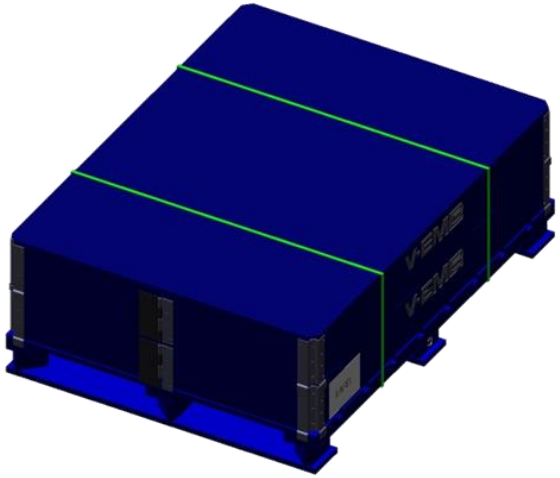
L2 PALLET
1 LABEL



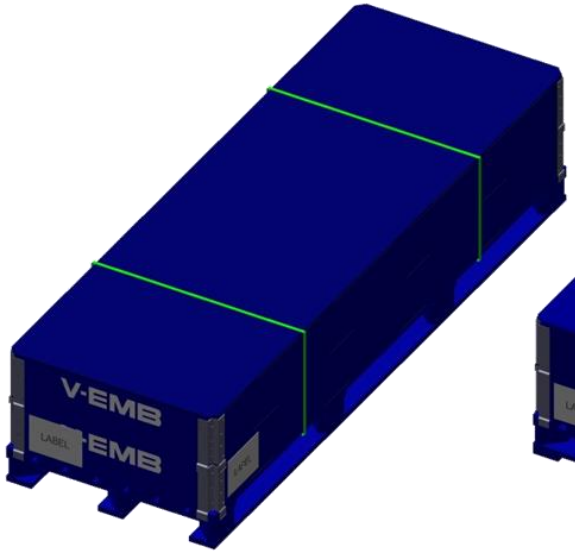
G2 PALLET
2 LABELS



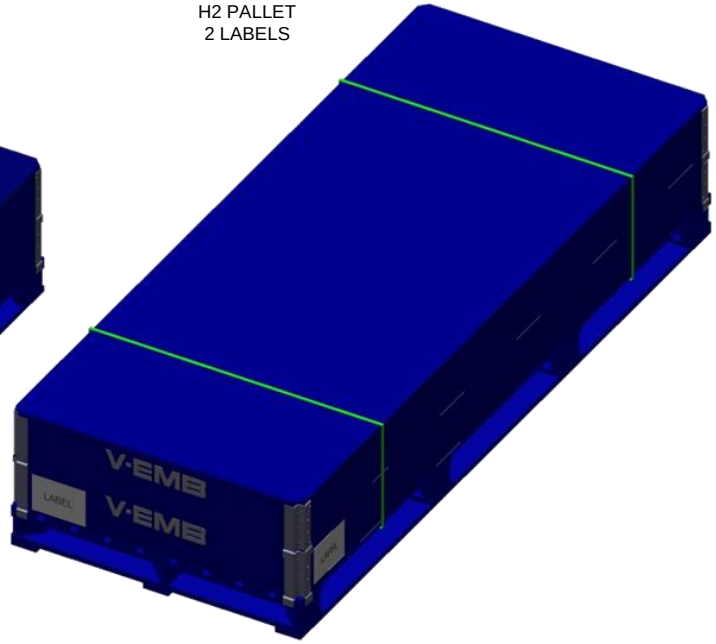
H2 PALLET
2 LABELS



F2 PALLET
2 LABELS



701-2 PALLET
2 LABELS



724-2 PALLET
2 LABELS

Banding specifications

PACKING INSTRUCTION - EMBALLAGE
Banding / Strapping Spec

VOLVO
Volvo Logistics Corporation

The use of Steel Strapping or hand tentioned fastenings are not suitable

VLC Emballage' s Preference	Accepted by VLC Emballage	Un- acceptable for regular use	Un- acceptable for regular use	Not acceptable -
This strapping material often has a smooth finish, yields higher break strengths and maintains a higher level of retained strap tension than polypropylene	This strapping material has often has a woven finish is more flexible than polyester but has a lower breaking strength.	This strapping material has a woven finish, it very strong – but has to be fixed with a hand tensioned metal clasps and is therefore not acceptable	Similar to the woven polyester often with a smoother finish. It also has to be hand tensioned and uses the same clasps. It is therefore also not acceptable	Steel Strapping is not acceptable, it damages the packaging too easily , leaves rust marks if left and posses a high risk of injury when being cut.

SPECIFICATION : **MIN 15mm X 0.6 / 0.7 mm**

Breaking strength min 4000n or approx 400 kg - Stretch max 15%

STRAPPING TOOLS:

Our preferred strapping fixing is FRICTION WELDED (Fig 1)
This involves a handheld battery power tool –This method removes the need for any metal clasps and conforms best to our safe working & environmental policies. (Polypropylene and Polyester can be secured in this way)

Our Second preference is for metal clip fastening (fig 2), which is strapped using a combined tensioner and clip fastener. It is important that the tools chosen are able to put sufficient tension into the banding.

Fixing using separate tools (Fig 3) are not recommended- as achieving the correct tension is difficult.

! **Please note; Bundles of empty packaging that are not banded in the appropriate manner ,are insecure, or have become unstable in transit may be subject to Resorting charges**