Logistics Manual

Zollner Group of companies Standards
Supply Standards for Purchased Parts

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Necessity

Relevant processes and standards are recorded in this manual for the standardized and error-free processing of deliveries to the Zollner Group of companies.

Standard requirements for deliveries and product-specific requirements (e.g.: traceability requirement, packaging, etc.) require a high level of quality in the supply standard.

Disruption-free material flow in the supply chain should be achieved with this manual. The Logistics Manual applies to deliveries to the entire Zollner Group of companies .

1. Communication Standards

The following contact persons are listed for the standards for vendors/suppliers described in the Logistics Manual. The responsible specialist departments in the Zollner Group of companies are available to answer any questions.

- Electronic data communication: edi@zollner.de

- **Procurement transport:** warenverkehr@zollner.de

- **Shipment marking/identification:** warenkennzeichnung@zollner.de

2. Procurement Transport

The following terms and conditions are to be observed for deliveries to the Zollner Group of companies and the creation of shipping units:

3.1 Transport and Shipment Specifications for Vendors & Suppliers

The transport rules for freight collect deliveries that apply to the Zollner Group of companies are described in the *Zollner Shipment Guidelines*. The valid documents described here can be obtained per request from the *Zollner Global Procurement Organization*. The Zollner Group of companies will not accept any additional freight or other costs upon noncompliance with the *Zollner Shipment Guidelines*.

3.2 Incoterms

International regulations apply for the structure of commercial contract formats in foreign trade contracts (current Incoterms).

3.3 Transport Documents

The following information is to be written/printed on delivery papers, the delivery notes/slips in particular. (Data will be transmitted by Zollner Elektronik AG during order placement)

- Recipient / Warenempfänger
- Delivery slip/note number / Lieferscheinnummer
- Purchase order number or delivery schedule number / Bestellnummer oder Lieferplannummer
- Scheduler/MRP Controller ([2])
- Plant / Werk ([3])
- Material Number / Materialnummer
- Quantity / Menge
- Supplier or vendor / Lieferant

Three examples:

Standard purchase order:

4500123456 - 762[2] - 012[3]

Delivery schedule:

5500051234 - 616[2] - 031[3]

VMI delivery schedule:

5800012345 - 616[2] - 034[3]

Co-applicable documentation for the Zollner Shipment Guideline can also be requested from the Global Procurement area.

3.4 Transport Insurance

The Zollner Group of companies. Is self-insured; additional transport insurance is only to be purchased upon agreement with the ordering party.

3. Packaging

4.1   Area of application

This Logistics Manual contains general packaging rules for use between the Zollner Group of companies and the vendor/supplier. The responsible Zollner packaging planner and the vendor/supplier will finalize the agreement on the defined, product-specific packaging in the form of a packing instruction. This Logistics Manual is supplemental to the generally applicable packing instructions in the quality assurance agreement.

4.2   Term definitions

Package goods   Goods that are packaged

Shipping materials   Containers in which the package goods are packaged

Auxiliary packaging material Materials that improve the stability of the packaging material: protective and insulating lid, inner protection: foam, Styrofoam, etc.

One-way (disposable) packaging   Packaging planned for only one-time use (e.g.: cardboard boxes)

Reusable packaging   Packaging that can be utilized multiple times without adversely affecting protective, transport storage and cargo handling functions, and which can be utilized in public or private circulation

Returnable packaging   Reusable packaging that is exchanged with a partner and is indicated in a pool (e.g.: ESD cases, mesh boxes, Euro pallets)

Loading units   Loading units are created for packaging that consists of multiple reusable components (pallets, bins, cover plates, etc.).

Load securing   Serves to protect the loading units from various forms of stress: shifting, rolling, tipping, expansion (corrugated cardboard swelling, warping), moisture, contamination, etc. (e.g.: tape, pallet straps, anti-slip mats, edge protection, foils).

4.3   Basic Rules of Packaging

Vendors/suppliers observe the following basic rules:

1. Avoidance of packaging
Packaging cannot be larger or more complex than is absolutely necessary for protection of the goods (packed goods).

2. Maximum fill level
Suppliers should always deliver containers with a maximum fill level.

The following maximum weights apply:

- GLT (large load carrier): max. 1,000 kg
- KLT (small load carrier): max. 15 kg

3. Dimensions
Reusable packaging should have standard sizes.

Local and standard sector rules apply for Euro pallets and wire mesh crates. If there is any doubt, the rules of the European Pallet Association apply. (Internet: www.epal-pallets.org)

Specific design, variant parameters and one-way packaging are only permitted if agreed upon in advance.

4. Packing materials

When using one-way and reusable packaging, recyclable packing materials are to be utilized and marked in accordance with waste management specifications. Use single materials. Composite materials are not permitted. Specifications in EU Guideline 94/62/EG are to be observed for packaging.

Reusable packaging materials must be resistant to cleaning agents and heat. Local and standard sector regulations apply for packaging made of wood.

5. Packaging material preferences
If one-way packaging and reusable packaging are equal in regard to economics and quality, reusable packaging is to be preferred.

Reusable packaging that can be pooled (= returnable packaging: Euro pallet, Euro wire mesh box pallet, VDA-KLT, etc.) are to be preferred over those that cannot be pooled. For this reason, inserts (bubble wrap) are preferably to be defined as one-way packaging.

6. Stackability
Packaging materials must be able to be stacked.

7. Cleanliness and damage
Packaging must be provided clean and undamaged. Reusable packaging must be designed such that it can be completely emptied and is easy to clean and dry.

4.3.1 4.3.1 Packaging for components sensitive to ESD

Handling and packaging ESD-sensitive components must be in accordance with IEC 61340-5-3. The following criteria must be observed when selecting the proper packaging type for form-fitting outer packaging: dissipative, conductive or shielding.

Prescribed marking for packaging:

*Identifying the main function

- **S**   shielding against electrostatic discharges
- **F**   shielding effect against electrostatic fields
- **C**   electrostatically conductive
- **D**   electrostatically dissipative

4.3.2 Packaging dangerous goods

Dangerous goods must be packaged/packed in packaging that complies with applicable dangerous goods regulations.

4.4   Packaging cycle

4.4.1 Provision of packaging

The vendor/supplier is responsible for the use of agreed-upon containers. If the vendor/supplier has failed to request or procure the packaging in a timely manner, that vendor/supplier will carry all accrued additional costs (e.g.: freight charges, repacking/repackaging costs).

4.4.2 Empty packaging 'empties' management

Ownership of the containers is established via credits and debits in container accounts. The vendor/supplier is obligated to administer container accounts.

4. Shipment marking/labeling

Deliveries to the Zollner Group of companies are to be marked/labeled according to the following standard in order to guarantee error-free and standardized information transfer for a delivered material. Markings/labels must be unique and visibly attached to the delivered goods. There are particularities for products to be marked/labeled that are subject to traceability requirements. Along with the standard marking/labeling (5.2 Standard marking/labeling), the mark for a product with trace obligation is required (5.3 Labeling for trace obligation) The following process is decisive to implementation of the requirements.

5.1   Term & Phrase Definitions

Shipping unit Unit of packages comprising a delivery and which represents a closed unit as a result of fixing or packaging.

Smallest packaging unit: The smallest container in a delivery, which represents a closed unit at the lowest level due to fixing or packaging.

→ Smallest packaging units have no inner packing.

5.2   Standard labeling

Every shipment must be marked with a standard label as the master label. The following data is mandatory input:

- Recipient/Warenempfänger (1)
- Delivery slip/note number (Lieferscheinnummer) (3)
- Purchase Order Number (3)
- Part Number (8)
- Quantity (9)
- Sender/Absender (15)

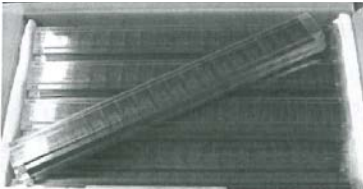The following is an example of a standard label for marking the shipment/delivery:

(1) Warenempfänger/ Kurzadresse **Zollner Elektronik AG** **93499 Zandt**	(2)		(3) Shipping Note **123456LS** Purchase Order Number **450000000**	
	(8) Part Number **1476663-00**			
	(9) Quantity **3000**	(10)		
		(11)		
(12)				
		(13)	(14)	
(15) **Testlieferant xy** **99999 Musterstadt**		(16)		Special Mark

Illustration1: Sample standard requirement as a master label for all shipments/deliveries (minimum specification)

5.3 Labeling for trace obligation

If traceability is required for a product, the MAT label must be attached to the smallest packaging units for identification at component level (MAT label as the single label). This contains all the information necessary for traceability in an appropriate format. The content and layout if this label can be taken from the currently valid document, e.g.: "MAT-Label_Requirements_on_Marking_of_Goods_Vers_2.6". This can be requested at warenkennzeichnung@zollner.de. The label is always to be attached to the smallest packaging units. Examples follow:

Reel goods	
	A reel represents the smallest packaging unit, which is to be marked with the label. Not the so-called "pizza box", rather the inner packing (reel) is to be marked

Goods in dry pack or protective wrapper	
	If there is a dry pack or protective foil wrapper, this is defined as the smallest packaging unit. The label must be able to be easily and cleanly detached from the protective foil (intact). If tubes are bundled or packaged/packed, the bundle or protective packaging is to be labeled.

Multiple inner packing

Every piece of inner packing in one-way or returnable containers requires an individual label, if the packaging consists of:

- bundled (consolidated)

- individually closed

  packages or

- are able to be removed separately.

Every bundle (e.g.: PCBs in pouches) has its own specific label, independent of its outer packaging (every packaging unit is to be labeled).

A label for each stick is needed for stick goods, if the size allows for that (otherwise on the next packaging unit).

Containers

Every container (e. G.: solder paste) requires a label. The container lid (cover) is the preferred location for the label.

The batch number and expiration date must be exactly the same on the MAT label as it is on the vendor/supplier label, which is found on the side of the container.

Containers without inner packing:

	One-way and returnable containers that contain multiple tubes (stick goods), trays, etc., are to be marked with a label on the outside, on the next PU, if they loose and are not bundled or packed in protective foil.
	Single variety and batch purity is the basic prerequisite. In this case, the outer label (next packaging unit) refers to the total number of parts inside.
Containers without inner packing	
	One-way or returnable packaging is always defined as the smallest packaging unit, if the container or cardboard box contains no separate inner packing, as described above.
	These containers must be marked with a single label such that the label and the label code are accessible.
	Special agreement is needed for this.

Illustration2: Single label, smallest PU

If the batch purity of the packing unit is guaranteed with multiple inner packing, the MAT label can also be agreed upon as the master label.

MAT label as the master label:

Master label	
	The MAT label, when functioning as the master label, offers a special opportunity of identifying a complete unit (e.g.: a pallet) with one scan.
	Mixed units are not possible when using a master label.
	Here, too, separate agreement is necessary.

(1) Warenempfänger/ Kurzadresse **Zollner Elektronik AG 93499 Zandt**	(2) Abladestelle – Lagerort - Verwendungsschlüssel		(3) Shipping Note (16K): **123456LS** Purchase Order Number (K): **450000000**
[Data Matrix code]	(8) Part Number (P) **1476663-00**	Add. Info (20P) Expiry Date (14D) 20150411 MS-Level (Z): N	
	(9) Quantity (Q) **3000**	(10) Part Name Testkerko	
		(11) Man. Part No. (1P): T12334K-10 Ordering Code (31P):	
		Man.Loc: (10V): DEU-BERLIN	
(12) Packaging Unit – Reference: Supplier-ID (V): 700000 Package-ID (3S): 1234567		(13) Date Code (6D): 20130411	(14) Index (2P)
(15) Supplier: **Testlieferant xy** **99999 Musterstadt** Supplier-Data (1Z):		(16) Batch Number: 1. Batch (1T): PC1234 2. Batch (2T):	(Special Mark)

Illustration3: MAT label as the master label for trace obligation.

5.4   Label generation using the Zollner web platform

Along with creating the Mat label through programming, the Zollner Group of companies gives you the opportunity of creating and printing labels according to specification from a web portal in order to mark material deliveries. Internet access is required for this. If you are interested in using the platform, you can get more information and access data from warenkennzeichnung@zollner.de.

6. Electronic business data transmission (EDI)

Contact person: Mr. Markus Bräu – Tel.: +49 9944 201-8216,
                Email: markus_braeu@zollner.de

In order to minimize the manual effort and associated proneness to error during transmission of business data between the Zollner Group of companies and its vendors/suppliers, transmission of business data is offered via EDI.

Suppliers without an existing EDI connection to the Zollner Group of companies are supported in its implementation, based on agreed-upon process steps. The available message/notification formats and technical prerequisites are described in detail in the applicable *Zollner EDI Guidelines.*

6.1   Conventional EDI

Delivery call offs (LAB)

The Zollner Group of companies routinely transmits current delivery call offs to vendors/suppliers with the respective agreed-upon data horizon. An appropriate agreement is to be entered in advance for this processing.

- EDI standard   EDIFACT
- Message Implementation Guidelines   EDIFACT
  DELFOR D96A

Invoices
The following standard is offered to vendors/suppliers for transmission of invoice documents via EDI:

- EDI standard   VDA
- Message Implementation Guidelines
  GLOBAL INVOIC; 1.1; public
  based on UN D.07A S3

Stock/inventory data / movement data

Vendors/suppliers are offered the following standard for the transmission of warehouse stock and stock movements for the processing of our VMI models via EDI:

- EDI standard   EDIFACT
- Message Implementation Guidelines   EDIFACT
  INVRPT D96A

6.2   WebEDI

Alongside the conventional EDI interface, data transmission via WebEDI is also available.

Please contact us at the following email address for additional information and answers to questions regarding our message standard: EDI@Zollner.de.

7. Glossary for section 6

EDI   **Electronic Data Interchange**
                Collective term for the fully automated transmission of structured notifications between business partners' ERP systems

EDIFACT   **Electronic Data Interchange For Administration, Commerce and Transport**
                Cross-sector, international standard for the format of electronic data in business transactions

WebEDI   Interface via a Zollner web portal for the Electronic Data Interchange-System, allowing for a convenient EDI solution for suppliers