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Abbreviations

Abb.   Abbildung
AEB   Allgemeine Einkaufsbedingungen
AIAG  Automotive Industry Action Group
ASN  Advanced Shipping Notification
EDI  Electronic Data Interchange
EDL  Externer Dienstleister
ERP  Enterprise Ressource Planning
EXW  Ex Works
FCA  Free Carrier
GLT  Großladungsträger
GTL  Global Transport Label
JAMA  Japan Automobile Manufacturers Association
JAPIA  Japan Auto Parts Industries Association
KLT  Kleinladungsträger
LAB  Lieferplanabrf
LPI  License Plate (Packstücknummer)
MILO  MAHLE Inbound Logistics Optimization
MHD  Mindesthaltbarkeitsdatum
MM  Materials Management
MSC  MAHLE Supply Concept
Odette  Organisation for Data Exchange by Tele Transmission in Europe (dieser ausgeschriebene Ausdruck wird allerdings nicht mehr verwendet, da sich die Schwerpunkte verändert haben)
PDF  Portable Data File
RBV  Rahmenbelieferungsvertrag
Tab.  Tabelle
TLB  Technische Lieferbedingungen
VDA  Verband der Automobilindustrie
VMI  Vendor Managed Inventory
WebEDI  Webbased Electronic Data Interchange
1. Objectives

The logistics guideline of MAHLE Filtersysteme GmbH (hereinafter referred to as “MAHLE”) includes the principle requirements, which the MAHLE suppliers must fulfill. Adherence to the guidelines is required during the development, design and planning of logistics concepts.

Adherence to the following items is especially required:

- Appropriate protection of components to minimize damages
- Guarantee of process safety and guarantee of production supply
- Simplification when handling goods/containers
- Minimizing the logistics cost for the supply chain
- Automated data exchange
- Organized communication to guarantee a continued improvement process

The MAHLE logistics guideline will be sent to the potential suppliers of MAHLE with the request documents. The logistics guideline complements the MAHLE purchasing conditions—latest standard. With the dispatch of the order confirmation the supplier commits to meet the general and specific MAHLE logistics requirements.

This agreement is binding part of the order. In the case of contradictions the individual regulations of the framework supply contract or the general purchasing terms have priority.
2. Scope of Application

The guideline applies to the following plants:

<table>
<thead>
<tr>
<th>Germany</th>
<th>Phone switchboard</th>
<th>Incoming goods times</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAHLE Filtersysteme GmbH</td>
<td>+49 7172 182-0</td>
<td>Monday to Friday 7:00 a.m. to 4:30 p.m.</td>
</tr>
<tr>
<td>Maierhofstr. 1–3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>73547 Lorch, Germany</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAHLE Filtersysteme GmbH</td>
<td>+49 7941 67-0</td>
<td>Monday to Friday 7:30 a.m. to 3:00 p.m.</td>
</tr>
<tr>
<td>Schleifbachweg 49–53</td>
<td></td>
<td></td>
</tr>
<tr>
<td>74613 Öhringen, Germany</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Differing delivery address:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Johann Mader Lager GmbH</td>
<td></td>
<td>Monday to Friday 7:30 a.m. to 3:30 p.m.</td>
</tr>
<tr>
<td>Verrenberger Weg 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>74613 Öhringen, Germany</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Austria</th>
<th>Phone switchboard</th>
<th>Incoming goods times</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAHLE Filtersysteme Austria GmbH</td>
<td>+43 4235 5050-0</td>
<td>Monday to Friday 6:00 a.m. to 9:00 p.m.</td>
</tr>
<tr>
<td>St. Michael 19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9143 St. Michael ob Bleiburg, Austria</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAHLE Filtersysteme Austria GmbH</td>
<td>+43 7742 5794-0</td>
<td>Monday to Thursday 7:00 a.m. to 12:00 p.m.</td>
</tr>
<tr>
<td>Salzburger Straße 27</td>
<td></td>
<td>12:30 p.m. to 4:00 p.m.</td>
</tr>
<tr>
<td>5230 Mattighofen, Austria</td>
<td></td>
<td>Friday 7:00 a.m. to 12:00 p.m.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>France</th>
<th>Phone switchboard</th>
<th>Incoming goods times</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAHLE Filtersysteme France SAS</td>
<td>+33 3 2309-3100</td>
<td>Monday to Friday 8:00 a.m. to 12:00 p.m.</td>
</tr>
<tr>
<td>55, Rue Robertine Dubois</td>
<td></td>
<td>1:00 p.m. to 5:00 p.m.</td>
</tr>
<tr>
<td>02110 Seboncourt, France</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Country</td>
<td>Phone switchboard</td>
<td>Incoming goods times</td>
</tr>
<tr>
<td>--------------</td>
<td>-------------------</td>
<td>----------------------</td>
</tr>
</tbody>
</table>
| Great Britain| MAHLE Filter Systems UK Ltd.  
Halesfield 25  
TF7 4LP Telford, Great Britain | +44 1952 68-3600 | Monday to Friday | 6:00 a.m. to 4:00 p.m. |
| Romania      | MAHLE Componente de Motor SRL  
Calea Aradului DN69 Km. 6.6  
300633 Timisoara, Romania | +40-256-265622 | Monday to Friday | 6:30 a.m. to 8:30 p.m. |
| Turkey       | MAHLE Filtre Sistemleri A. S.  
Peiltli Koyu, Ayaz Sokak No: 54  
41480 Gebze/Kocaeli, Turkey | +90 262 7515301 | Monday to Saturday | 8:00 a.m. to 8:00 p.m. |

Tab. 1: Scope of the guideline

Deliveries to all MAHLE plants outside the opening times must be approved in advance and must be reported to the incoming goods department. Deliveries on Sundays and on holidays must also be approved.
3. MILO – MAHLE Inbound Logistics Optimization

MAHLE has developed a new, streamlined process along the supply chain from the supplier to the customer, in order to reduce material processing times, identify defects at an early stage, and thus preemptively avoid short-term bottlenecks.

The supplier receives scheduling agreement schedules or stock levels and requirements via EDI or WebEDI in defined cycles. In return, the supplier sends the delivery note data back to MAHLE via EDI or WebEDI when the goods are issued. This Advanced Shipping Notification (ASN) includes packaging data and the license plates (package serial numbers or handling unit numbers). Registering the goods promptly avoids unnecessary communication between MAHLE’s procurement teams and the supplier, while also achieving better capacity utilization in the goods receiving process.

The containers must be labeled by the supplier using labels in the format required by MAHLE (see Implementation guideline GLOBAL TRANSPORT LABEL (GTL)). The main feature of the label is the license plate in barcode form. When the goods are unloaded, the barcode of the license plate on the container’s master label is scanned using a tablet. If the license plate has previously been sent via the ASN, the system will recognize the container. An unloading control is carried out. This makes it possible to immediately detect containers for which no notification has been sent.

Thanks to an app that clearly displays the packaging specification, incorrectly packed goods can be identified very early on, avoiding a great deal of effort in the warehouse at a later stage. Other divergences from the process (e.g., incorrect delivery note, damaged packaging) can also be recorded directly in the goods receiving process using the tablet, and documented immediately with photographs.

The containers associated with a delivery note are booked into the system after all pallets from the same goods receiving posting have been scanned. The booking process requires the generation of a MAHLE-internal number for each license plate. This number only exists in the background but plays a crucial role in all storage and removal processes in the MAHLE warehouse. Accordingly, the supplier label remains in use throughout the process and the containers are not relabeled. The accuracy and quality of the label is therefore extremely important. Consistent use of the license plate guarantees the traceability of the finished product back to the supplier.
ASN with License Plates via EDI/WEBEDI

Creation of SAP inbound delivery (delivery note) incl. Handling Units

Comparison of actual packaging with defined packaging instruction

Recording of additional deviations of the actual delivery from standard process

Creation of quality message for the relevant goods receiving posting

Unloading control and goods receiving posting via scan of License Plate with the tablet

Locating the pallet in the warehouse by scanning the License Plate on the supplier label

License Plate gives the traceability from the supplier to the finished goods delivered to the customer

App for enlarged goods receiving process with tablet

Fig. 1: MILO – MAHLE Inbound Logistics Optimization
4. Information Logistics

4.1 Communication supplier – MAHLE

Competent, efficient, and standardized communication between MAHLE and the supplier forms the basis for a successful cooperation. Compliance with agreements together with the immediate and honest provision of information in the event of any changes to the supply relationships constitute the basic components of a good cooperation.

4.1.1 Contacts

The supplier is to provide MAHLE with the names of those responsible for the entire supply chain (contacts, representatives and supervisors with their respective e-mail, phone, and fax numbers). The contact possesses the necessary expertise and is proficient in either the language of the corresponding MAHLE receiving plant or English as the standard language of international communication.

4.1.2 Availability

The contact named by the supplier must be available on working days (excluding public holidays) from at least 7:00 a.m. to 5:00 p.m. (local time of the respective supplier). Outside this period (or in the event of plant closures), an emergency phone number with the necessary expertise must be set up to ensure availability for MAHLE in urgent cases.

4.1.3 Delivery bottlenecks

The supplier must inform the affected MAHLE plant/supplier management proactively and immediately if the supplier finds out that a delivery date or a delivery quantity agreed with MAHLE cannot be met (e.g. due to technical deficiencies, capacity bottle necks, quality problems, etc.). The information must include the reasons, the expected duration of the delay and the impact of the measures taken to resolve the issue.

Express deliveries and special transports require always consultations with the MAHLE material planning. The cost must be covered by the party, which initiated the special transport.
4.2 Electronic data exchange

4.2.1 EDI (Electronic Data Interchange)

Business data can be exchanged between the information systems by using Electronic Data Interchange (EDI). For this purpose the standard formats VDA and EDIFACT are used. For both message formats there are MAHLE own guidelines existing.

MAHLE uses currently the following messages for its business processes:

<table>
<thead>
<tr>
<th>Process</th>
<th>VDA</th>
<th>EDIFACT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supplier orders</td>
<td>4905</td>
<td>DELFOR D97A</td>
</tr>
<tr>
<td>Credit note</td>
<td>4908</td>
<td></td>
</tr>
<tr>
<td>Delivery and transport data (direct delivery or external service provider placement)</td>
<td>4913</td>
<td>DESADV D97A</td>
</tr>
<tr>
<td>ESP (external service provider) notifications (sample, inventory)</td>
<td>4913</td>
<td></td>
</tr>
<tr>
<td>Single order/order changes</td>
<td></td>
<td>ORDERS D96A</td>
</tr>
</tbody>
</table>

Tab. 2: EDI messages

Should you have any technical questions concerning the electronic data exchange, please contact the following number, specifying your supplier ID number:

E-Mail: edi-team@mahle.com
Phone: +49 711 501-38000

Note:

A classical EDI connection requires an appropriate infrastructure on the part of the supplier (IT system integration). MAHLE reserves the right to only connect suppliers with a significant volume via classical EDI connection.

MAHLE also provides free use of a WebEDI platform as an alternative for small volumes and/or missing technical requirements.

An electronic communication is a forcing premise for a successful business process with MAHLE. Therefore the suppliers need to be connected either via classical EDI or WEB-EDI.

---

Fig. 2: Communication structure MAHLE—supplier via EDI
4.2.2 WebEDI

WebEDI is used by suppliers who do not have an EDI interface available.

The WebEDI system stores the data to be sent to the business partner on a web server. The supplier must then log onto the server with his own user name and password in order to view, print or download the stored data in various formats, as well as send data back to MAHLE. In Figure 3, the process is shown.

During a nightly SAP job run, master data from the plants such as scheduling agreements, packaging instructions, etc. as well as the available supply schedule orders for existing supply schedules are transmitted to the SNC with the date and quantity. After this job run, the data becomes available for the supplier. All relevant supply schedules with the last order date are listed in an overview where the user can switch between the details incl. the schedule data and quantities.

Receipt of the orders is to be acknowledged by the supplier once he has viewed them. In the event of a bottleneck, the supplier must immediately contact the respective plant’s procurement team as soon as the new order appears in order to discuss how to proceed. Without this consultation, the order and the schedules contained therein are deemed to be accepted and confirmed.

A due date list shows all the items due to be shipped according to the supply schedules. On the day of the delivery to a MAHLE plant, the supplier must create an electronic delivery note (ASN) for the material to be supplied and its packaging incl. License Plate, specifying the delivery note number, shipping date, delivery date, batch, version number and if necessary, the best before date (cf. chapter 4.6.2).

Once the ASN has been successfully created, it is saved and published. From this point on, the delivery is visible in MAHLE SAP. A separate function within the WebEDI platform prints the labels and the delivery note for this ASN in the defined MAHLE format.

As soon as the goods have arrived at the MAHLE plant, all of the components and packaging materials of the goods receiving contained in the electronic delivery note are posted. This goods receiving information is transferred during a nightly SAP job run to the platform and can be viewed the next day.

Contacts:
Anna Sakova (Supplier Management Logistics BU2 Europe), Marco Boll (IT)
4.3 Advanced Shipping Notification (ASN)

The ASN (Advanced Shipping Notification) must be sent upon request by the receiving plant and is the basis of subsequent goods receiving postings.

The supplier sends a notification as preliminary information in parallel to the delivery by using the EDI in accordance with VDA 4913/EDIFACT DESADV D97A or via WebEDI.

The shipping notification must also include packaging information alongside the information regarding the production material to be delivered. Notification of the valid MAHLE packaging number and the respective package serial number, hereinafter referred to as “license plate” must be sent for each large and small container (in the case of two-layer packaging), which can later be seen on the label in the form of a barcode.

In order to manage all delivered containers with the system, it is imperative that notification of disposable packaging is also sent. However, neither goods receiving is posted nor an empties account is kept for such.

The returnable packaging material numbers requiring notification are provided in chapter 7.2.

On the day of dispatch, the dispatch notification must be sent to MAHLE no later than 30 minutes after the dispatch of the delivery.
4.5 Delivery concepts

MAHLE generally distinguishes between the following concepts for controlling a supply chain:

- Schedule processing
- Vendor Managed Inventory (VMI)
- Supplier kanban

Determining which delivery concept to use depends on the material to be supplied and its requirements, the supplier’s distance from the MAHLE plant, and the intrinsic value.

4.5.1 Schedule processing

4.5.1.1 Traditional schedule processing

Here, supply orders are transferred on a rolling basis, depending on the order creation profile agreed between MAHLE and the supplier (daily, weekly, etc.). These are updated regularly and contain general data with a scope of at least 6 months. The latest supply order is binding and replaces earlier supply orders.

Whenever MAHLE is the freight payer, the valid routing order for the plant to be supplied will provide the forwarder’s date of registration, pick-up date at the supplier’s plant, and delivery date at the MAHLE plant (running times) along with the means of transport.

It is important to note that the due dates listed in the supply orders are goods receiving dates at the respective MAHLE plant.

Fig. 4: Traditional schedule processing
4.5.1.2 Schedule processing with consignment contract

In a departure from the traditional schedule processing described above, the consignment warehouse concept is additionally used for certain materials/suppliers. In this case, the supplier maintains a consignment stock at a logistical service provider (LSP) assigned by MAHLE or directly at an appropriate MAHLE plant in accordance with a single stage delivery processing. Depending on the contract the supplier is responsible to deliver the appropriate demands either on his own authority or according to the supply orders.

The consignment stock will be agreed to individually in advance by the procurement department in cooperation with the logistics department.

The supplier is responsible for the stock levels at the external or MAHLE internal consignment stock.

By using the EDI, the LSP in abbreviations or the appropriate MAHLE plant make information available on each work-day about stock levels and consumption.

The following standard formats are provided for the individual types of notification:

<table>
<thead>
<tr>
<th>Message type</th>
<th>VDA</th>
<th>EDIFACT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply order</td>
<td>4905</td>
<td>DELFOR D97A</td>
</tr>
<tr>
<td>Advanced Shipping Notification</td>
<td>4913</td>
<td>DESADV D97A</td>
</tr>
<tr>
<td>Goods receiving message</td>
<td>4913</td>
<td>VA30</td>
</tr>
<tr>
<td>Stock message</td>
<td>4913</td>
<td>VA35</td>
</tr>
<tr>
<td>Withdrawal message</td>
<td>4913</td>
<td>VA36</td>
</tr>
</tbody>
</table>

Tab. 3: EDI message types
4.5.2 Vendor Managed Inventory (VMI)

When using the VMI concept, the supplier assumes responsibility for the material requirements planning. The supplier does not receive any supply orders via the WebEDI platform; instead, he receives requirements and a projected inventory development for a defined period of time.

Minimum/maximum limits for specific material numbers, within which the inventory fluctuates, are agreed in advance with the MAHLE plant.

The inventory development is simulated for the future, depending on requirements and the current inventory levels. The supplier is responsible for entering planned receipts in the VMI monitor so that the projected inventory remains within the inventory limits agreed upon with MAHLE.

To provide a better overview, the periods are color-coded depending on the projected inventory level:

1. Green
   The projected inventory lies within the minimum and maximum inventory limits → Target state

2. Blue
   The projected inventory lies above the maximum → Inventory level is too high

3. Orange
   The projected inventory lies below the minimum → Inventory level is too low

4. Red
   The projected inventory lies below zero → Shortfall

The great advantage of such a procedure is that the supplier has a detailed overview of the future requirement situation of the receiving plant, and can thus optimize his internal processes and plans accordingly as long as the inventory level lies within the defined limits.

On the day of delivery, an ASN must be created for the planned receipt and packaging. This is similar to the previously described process in chapter 4.2.2.

This procedure is particularly suited for parts with relatively constant requirements.

Contacts:
Anna Sakova (Supplier Management Logistics BU2 Europe), Marco Boll (IT)
Fig. 8: Process description VMI at MAHLE

1 ASN = Advanced Shipping Notification
2 LPI = License Plate Packstücknummer
4.5.3 Supplier Kanban

In the Kanban process, as the name already implies, cards (Kanban = card) are used for either physical or electronic control. As soon as a container is empty at the MAHLE plant, a kanban card is assigned the “empty” status and sent to the supplier.

Depending on the agreement, the supplier may collect kanban cards and fill the kanban warehouse again once a certain number of cards has been reached. Color-coded limits are agreed upon for this.

All red cards must be replenished, all yellow cards may be replenished, and green cards mean there is currently no demand. Upon delivery to the MAHLE plant, the kanban cards are given the “full” status again.

The advantage of this procedure is that the supplier is directly informed about the goods that were taken from the plant and only those goods are thus replenished. The concept therefore embodies a self-regulating control loop and is used for products with unchanging requirements and with a usually relatively short distance between the supplier and MAHLE.

Individual Kanban arrangements can be agreed upon between the supplier (depending on the product and general conditions), the MAHLE plant and the central supplier management logistics.

Fig. 9: Example of Kanban process
4.6 Accompanying documents

The supplier is responsible for the orderly establishment of the delivery documents in accordance with the respective standards. The supplier ensures that all required data and information for the transport logistics are completely documented and free of errors on the shipping papers as well as on the EDI transmissions.

The freight forwarder must receive a freight forwarding order and if required the export documents. The delivery note must be attached to the package in accordance with section 4.6.2.

The following standards are required for the accompanying documents:

**Material tags**
- GTL standard transport label (GTL → Global Transport Label)

**Delivery note/accompanying document**
- DIN 4994 Delivery note
- VDA 4912 EDI accompanying document

**Freight forwarder order/waybill**
- VDA 4922 Forwarder order/waybill (domestic transport)

All documents must be in the local language of the recipient or in English.

4.6.1 Material tags

Clear, systematic labeling of products and transport units allows easy identification. Packaging units must always be labeled with uniform, standardized, and barcode-readable transport labels that are described in the following chapter.

Representatives from Europe (Odette), Japan (JAMA/JAPIA), and North America (AIAG) have jointly developed a “Global Transport Label” (GTL) standard that can be used worldwide for supplier and customer relationships.

For this standard the new VDA guideline 4994 “Recommendation for utilization of the Global Transport Label (GTL)” has been published in March 2016.

MAHLE has complied with this standard in the design of its transport label, which suppliers must use for labeling goods.

There are three different forms of the GTL:
- Master Label for homogeneous loading unit
- Single Label for simplified loading unit or inner packaging
- Single Label in KLT format for inner packaging

Single Labels for simplified loading unit or inner packaging are used for containers with no subunits (e.g., cage pallets).

For containers with two-layer packaging, with the same material found in each small load carrier (e.g., pallets of SLCs), the pallet is given a master label for homogeneous loading unit, while each small load carrier (SLC, carton, etc.) is given a single Label in KLT format for inner packaging.

Fig. 10: Use of Master and Single labels
In the case of mixed pallets, each SLC is given its own single Label in KLT format and additionally there needs to be a master label for homogeneous loading units for each part number on the pallet. Agreements to the contrary must be coordinated with the MAHLE plant receiving the delivery and the central logistics department. The labels differ in size and in the information contained to some extent.

The license plate/Package ID is the decisive element. It is a package serial number that is made up as follows:

```
Qualifier
+ UN
+ globally unique DUNS Nr (9-digit number filled in).
+ sequential package serial number (9-digit number, with leading zeros filled in)
```

Example: 1J UN 987654321 000000001

The package serial number is not allowed to repeat within one year.

The qualifiers can be divided into the following two cases:

**Single-layer packaging:**
- Big load carrier has the qualifier 1J

**Two-layer packaging:**
- Big load carrier has the qualifier 6J
- Small load carrier has the qualifier 1J

If small load carriers with several different material numbers are transported on one big load carrier, the individual small load carriers are, by default, to be labeled with a KLT label with qualifier 1J and additionally for each material number a master label with qualifier 6J needs to be put on the big load carrier.

Deviations from this system must be agreed with the relevant plant and the central logistics planning.
The quality of the transport label should be such that it remains visually and machine-readable at all times, despite environmental influences and transport damage at the place of delivery.

The transport labels for small load carrier packaging must have a paper quality of $\geq 140 \text{ g/m}^2$.

A more detailed description of the layout and content of the MAHLE GTL can be found in the currently valid “Implementation Guideline Global Transport Label (GTL) at MAHLE”.

Fig. 12: MAHLE Master label GTL format

Fig. 13: MAHLE Single label GTL format
4.6.2 Delivery note

Three copies of the delivery note in accordance with DIN 4994 must accompany the goods. The delivery note must be attached on the front end by using a delivery note pocket. A dedicated delivery note must be established for each order.

If it is economically sensible for delivery notes to include several items, this may be agreed upon with the plant.

One delivery note set must be established for each unloading location.

The following data must be on the delivery note:

- Delivery note number
- Purchase order number or scheduling agreement number
- with position number
- MAHLE material number
- MAHLE description of commodities
- Total quantity and quantity of each packaging unit
- The type and quantity of transport packaging
- MAHLE part number, description and quantity of transport packaging
- Depending on the agreement with the MAHLE plant, the license plates of the master labels of the delivered containers

Fig. 14: Delivery note
4.6.3  
Freight forwarder order/waybill

At least three copies of the freight forwarder order/waybill in accordance with VDA 4922 must be handed to the freight forwarder.

Fig. 15: MAHLE freight forwarder order in accordance with VDA 4922
4.6.4 Labeling changes

In order to immediately identify first delivery containers with
a) a new component or
b) a new MAHLE change index
during goods receiving process, these must be marked with a change label.

This change label must contain the following information:

![Change label](image-url)

**Fig. 16: Change label**
5. Shipment of Goods for MAHLE

It is the objective of MAHLE to minimize the number of transports either by avoidance or by optimization or by combining of transports.

Therefore, FCA (“Free Carrier”) Incoterms are generally agreed upon with the supplier. For product groups with specific transport requirements or in order to reduce costs, diverging Incoterms may be agreed if necessary. Expenditures generated by non-observance of the following transport guidelines will be charged to the supplier.

5.1 Delivery frequency

In consultation with the supplier, MAHLE reserves the right to specify and change the selected delivery frequency. Deviations from the specified delivery frequency by the supplier are only possible after approval by the responsible MAHLE logistics functions.

5.2 Routing Order

The routing order describes the procedure of transports, transported at the expense of MAHLE. It is issued by MAHLE (either via the respective plant or the central logistics) and transmitted to the suppliers via the usual means of communication per email or mail.

All relevant information such as the approved forwarding companies, the process of notification, the transit times etc. are described in the routing order in detail. The confirmation of the routing order has to be done by the supplier in writing within the prescribed period. Incurred extra costs caused by failure to observe the routing order must be borne by the supplier.
5.3 Transport processing

5.3.1 Packet shipments
All packet shipments up to 30 kg, for that MAHLE is paying for the transport (Incoterm „EXW resp. FCA“), must be notified and handed over to the parcel service determined by MAHLE. Detailed information concerning the correct processing of the parcels need to be taken out of the routing order. A shipment is defined as the sum of all goods of a sender to a recipient per day of dispatch that are loaded on a collecting vehicle.

5.3.2 Truck, sea and air freight shipping
All deliveries heavier than 30 kg, for that MAHLE is paying for the transport (Incoterm „EXW resp. FCA“), must be notified and handed over to the forwarding company or freight carrier determined by MAHLE. Detailed information concerning the correct processing of the deliveries need to be taken out of the routing order. A shipment is defined as the sum of all goods of a sender to a recipient per day of dispatch that are loaded on a collecting vehicle.

5.3.3 Express shipments
Short notice, unplanned shipments are normally organized by the supplier and will be processed by the freight forwarder selected by the MAHLE logistics department. The respective MAHLE plant has always the authority to give the approval. The cost of express shipments, which are the responsibility of the supplier, will be invoiced to the supplier. Express shipments, which are not approved by MAHLE, must always be paid by the supplier.

5.3.4 Provision
For “EXW supplier” or “FCA supplier” shipments, the provision of the goods must always be made on the shipping day starting at 8:00 a.m. The supplier must pay the cost for possibly required special activities, downtimes of the freight forwarder or unnecessary trips by the freight forwarder if the provision is not made in time. The supplier and the freight forwarder have the right to amicably establish provision periods during normal business hours, however, at the latest until 4:00 p.m.

The transport assignment for “freight collect” delivery conditions must be made by the supplier at the freight forwarder approved by MAHLE. Possible additional cost due to the assignment of unapproved freight forwarders must be paid by the supplier.

The supplier is responsible for the order-ly determination of the gross weight and the average load weight of the shipment. Additional cost due to erroneous weight information must be paid by the supplier.
5.3.5 Loading

The loading must be done immediately after the vehicle is available. The following processing windows (loading of full loads, unloading of empties and administrative processing) are applicable assumed the loading units are available within the agreed upon loading time window:

- Parcels and express deliveries immediately
- Shipments up to 2.5 to max. 60 minutes
- Partial and total loads max. 90 minutes

The additional expenditures will be invoiced to the originator if the supplier causes inadequately long processing times. The fault of third parties (e.g. customs processing) is excluded from this regulation.

The supplier must guarantee the on-time delivery of the goods based on his own initiative if an orderly pick-up by the freight forwarder is not possible due to faults of the supplier (e.g. goods are not available at the forecasted time, unreasonable waiting times, etc.).

The supplier must organize the transport on his own expense to guarantee an on-time delivery if the defined pick-up time window for freight forwarders, e.g. as part of milk runs, are not met due to a fault of the supplier.

5.3.6 Unloading

Unloading at the MAHLE plant can in principle be carried out from the side or from behind, however it is not possible to do both at every plant.

The following options are available:

<table>
<thead>
<tr>
<th>Plant</th>
<th>Unloading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plant</td>
<td>Side</td>
</tr>
<tr>
<td>Germany</td>
<td>MAHLE Filtersysteme GmbH, Lorch</td>
</tr>
<tr>
<td></td>
<td>MAHLE Filtersysteme GmbH, Öhringen</td>
</tr>
<tr>
<td>Austria</td>
<td>MAHLE Filtersysteme Austria GmbH, St. Michael</td>
</tr>
<tr>
<td></td>
<td>MAHLE Filtersysteme Austria GmbH, Mattighofen</td>
</tr>
<tr>
<td>France</td>
<td>MAHLE Filtersysteme France SAS, Seboncourt</td>
</tr>
<tr>
<td>Great Britain</td>
<td>MAHLE Systems UK Ltd., Telford</td>
</tr>
<tr>
<td>Romania</td>
<td>MAHLE Componente de Motor SRL, Timisoara</td>
</tr>
<tr>
<td>Turkey</td>
<td>MAHLE Filtre Sistemleri A.S., Gebze</td>
</tr>
</tbody>
</table>

Tab. 4: Unloading possibilities
5.3.7 Shipments of dangerous goods

The dispatch of reduced quantities (within the hazardous goods definition) and any goods to be declared as hazardous goods may only be brought into circulation under consideration of valid legal regulations for hazardous goods. The supplier is obligated, when notifying the goods, to transmit to the forwarding agent the classification according to ADR (European Agreement concerning the international carriage of dangerous goods by road) and any special demands on the transport (demand on the means of transport, equipment etc.). Additionally, the supplier must create all documents and papers necessary for the shipping/transportation of the hazardous goods and transmit them to the freight forwarder upon collection latest. The labelling of the loading units by the supplier must be done according to the legally specified conditions.

5.3.8 Return shipments

Return shipments, which are generated based on a fault of the supplier, will be organized by MAHLE, assumed no other agreements were made in writing.

The supplier is responsible for the cost.

5.4 Confirmation of arrival

The European MAHLE plants in countries outside Germany proactively generate for all deliveries from Germany collected within one calendar month physically in the incoming goods area of the respective plant a cumulative certification of entry and transmit it by electronical means (currently via email) to the suppliers. In individual cases, the plants create cumulative certification of entry per quarter. This is in the discretion of the respective issuing plant.

The creation of the cumulative certification of entry and also its transmission by electronical means (by email) is expressly permitted according to the BMF (Federal Ministry of Finance) – with regard to the letter dated 16. September 2013.
6. Foreign Trade Issues

6.1 Invoice for customs clearance

For customs purposes the supplier must add to the shipping documents a commercial invoice in duplicate in the specified necessary language (dependent on the recipient’s country). Deviations to this are only permitted with prior written approval by MAHLE.

In case of customs relevant deliveries the following items must be separately shown in the invoice:

- the correct declaration of the value (purchase price of the goods)
- costs not included in the price (e.g. commissions, broker fees,
- development costs, license costs, equipment costs, free issue parts from MAHLE, etc.)
- costs included in the price (e.g. assembly costs, freight costs etc.)
- cost of repair according to material and personnel costs

Free deliveries also require a declaration of value including the indication „For Customs Purposes Only“. On the invoice the reason for the free delivery must be indicated (e.g. free sample delivery) If in case of imports or exports further official documents for the intended use of the delivery objects are required, the supplier is obligated to deliver these documents without delay on his own expenses and make them available to MAHLE immediately.

MAHLE reserves the right to invoice the supplier for possible additional expenditures and disadvantages due to not correctly processed customs issues.
6.2 Proof of preference, certificate of origin and indications of origin

The supplier is obligated to bindingly inform MAHLE about the origin of his goods especially the non-preferential origin and the preferential origin, by making the original data in written form (e.g. European Union (EU): long-term supplier declaration according to UCC; US: CBP Form 434 (NAFTA declaration of origin etc.) available within a period of 14 days after receiving the request.

The supplier commits to provide MAHLE all relevant foreign trade and export control data (especially customs tariff numbers according to HS-Code, the non-preferential and preferential origin, the export control data (e.g. export control classification according to the European Export List, export control classification number according to the US (Re) export regulations (ECCN, ERA etc.), US-percentage if goods have an US origin, Binding Tariff Information (BTI) etc.) within a period of 14 days after receiving the request.

The supplier agrees to issue the declarations of origin explicitly on the forms of MAHLE. Own documents and templates of the supplier are not accepted by MAHLE. The supplier commits to communicate changes in the origin of the goods in written form immediately to MAHLE. If the supplier delivers goods, that can get preferential treatment in the country of importation, he commits to enclose a proof of origin (e.g. movement certificate A.TR, EUR1 etc.). The certificate of origin must be issued for each related delivery.

If a certificate of origin is required because of other local import regulations in the country of importation, the supplier must make this certificate available for MAHLE for each delivery related at his own expense.

Each change on the provided declarations (e.g. origin, customs tariff number, export control data, foreign trade data etc.) is to be shown to MAHLE at once.

The supplier must support MAHLE with all necessary and required instruments that are necessary for the reduction or minimization of MAHLE's payment obligations concerning duties.
6.3 Security of the supply chain security

The supplier commits to ensure the security of the supply chain security. If needed and required by MAHLE, the supplier commits to confirm it by adequate proofs (for example AEO certificate, security declaration, C-TPAT certificate etc.) The supplier has the obligation to ensure comparable due diligence with his business partners.

6.4 Export control, export regulations and instructions

The supplier is responsible to inform MAHLE if goods (products, equipment, software or technology) are subject to measures of prohibition or restriction on exportation in the country of production and/or country of delivery.

If there is a requirement for an export license/authorization for the goods (products, equipment, software or technology) delivered to MAHLE by the supplier according to the European exports restrictions (goods are subject to the Dual use or armaments etc.) and their national implementation, the supplier commits to inform MAHLE about it in written form.

Additionally the supplier commits to inform MAHLE, if the goods (products, equipment, software or technology) are subject to the US (Re) export control regulations.

The supplier also communicates the significant classification number (e.g., export control classification according to the European Export List, export control classification number according to the US (Re) export regulations (ECCN, ERA etc.) if required, etc.) and possible export license/authorization requirements for goods (products, equipment, software or technology) to MAHLE.

The supplier is obliged to inform MAHLE about any possible change of the authorization requirements of his delivered goods because of legislative changes, regulatory determinations, technical changes etc.
7. Packaging

7.1 Requirements for the packaging

The specifications for the packaging are based on the following requirements:

- Packaging suitable for transport and handling
- Damage free delivery
- Compatibility to transport and storage systems of the individual MAHLE plants
- Increased use of reusable packagings, otherwise
- Use of recyclable nonreturnable packagings
- Optimal utilization of the containers
- Stackability
- Protection against dirt

The supplier bears the responsibility for ensuring the packaging is suitable for transport and handling, thus assuming damage-free delivery.

Returnables are made available and delivered by MAHLE undamaged and “clean-swept”.

Special attention must be paid to the fact that
- old product labels are removed;
- the load carriers are undamaged and in accordance with the component requirements.

The supplier is liable for quality reduction caused by the use of damaged or contaminated packaging.

For material with special requirements concerning cleanliness, special regulations concerning take-over of cleaning process of the returnables apply. These special regulations need to be defined in the packaging data sheet.

Detailed exchange capability criteria have been specified for Euro flat pallets and Euro barred boxes—please refer to recommendation EPAL: www.gpal.de.

Required repairs for reusable packagings must be performed in accordance with the EPAL recommendation.

For wood packaging materials, adherence to the regulations of the receiving country is required in accordance with the IPPC standard ISPM No. 15.

Load carriers and packaging pieces with a weight above 40 kg must be fork lift accessible (min. 100 mm fork lift height). The weight of transport packagings (small load carrier, cardboard) with bulk cargo must not exceed 15 kg. The transport packagings can weigh up to 50 kg (tare) if the parts are also packaged (for example in PE bags or small cardboard boxes).

Further information and specifications can be found in the currently valid Packaging Manual of MAHLE Filter systems.
7.2 Standard load carrier catalog

MAHLE mainly uses the following as reusable packaging or exchange packaging:
- VDA small load carriers
- Euro barred boxes in accordance with UIC 435-3

Other load carriers may also be used upon agreement with the MAHLE plant.

The following load carriers are used as standard:

**Big Load Carriers (BLC)**

<table>
<thead>
<tr>
<th>Description</th>
<th>MAHLE part number</th>
<th>Outer dimension [mm]</th>
<th>Inner dimension [mm]</th>
<th>Load volume [l]</th>
<th>Tara weight [kg]</th>
<th>Returnable packaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>EURO wooden pallet 1200x800</td>
<td>70669470</td>
<td>L 1200 W 800 H 100</td>
<td>L 1200 W 800 H 100</td>
<td>24.00</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Cage pallet 1200x800x1000</td>
<td>70669473</td>
<td>L 1240 W 835 H 970</td>
<td>L 1200 W 800 H 810</td>
<td>70.00</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>KLT A1208 end plate</td>
<td>70669462</td>
<td>L 1210 W 810 H 1210</td>
<td>L 1210 W 800 H 6.10</td>
<td>6.10</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

**Small Load Carriers (SLC)**

<table>
<thead>
<tr>
<th>Description</th>
<th>MAHLE part number</th>
<th>Outer dimension [mm]</th>
<th>Inner dimension [mm]</th>
<th>Load volume [l]</th>
<th>Tara weight [kg]</th>
<th>Returnable packaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>R-KLT 3215</td>
<td>76686224</td>
<td>L 300 W 200 H 150</td>
<td>L 243 W 162 H 129</td>
<td>5.3</td>
<td>0.57</td>
<td>X</td>
</tr>
<tr>
<td>R-KLT 4315</td>
<td>76673636</td>
<td>L 400 W 300 H 147</td>
<td>L 346 W 265 H 109</td>
<td>10</td>
<td>1.3</td>
<td>X</td>
</tr>
<tr>
<td>R-KLT 6415</td>
<td>70328522</td>
<td>L 600 W 400 H 147</td>
<td>L 544 W 364 H 109</td>
<td>22</td>
<td>2.2</td>
<td>X</td>
</tr>
<tr>
<td>RL-KLT 6147</td>
<td>70357850</td>
<td>L 600 W 400 H 147</td>
<td>L 568 W 370 H 132</td>
<td>25.0</td>
<td>1.82</td>
<td>X</td>
</tr>
<tr>
<td>RL-KLT 6280</td>
<td>70669467</td>
<td>L 594 W 396 H 280</td>
<td>L 544 W 359 H 262</td>
<td>51.9</td>
<td>2.67</td>
<td>X</td>
</tr>
</tbody>
</table>

Tab. 5: Standard load carrier catalog
7.3 Labeling of packaging units

7.3.1 Cage pallet

The labels are to be attached generally loss-proof at the front side. Only with the agreement of the receiving plant it is possible to attach the labels loss-proof at the upper side of the long side of the cage pallet.

7.3.2 Small load carrier

The labels for small load carriers must be attached at the slots designated for this purpose and must be fastened with glue dots that can be removed completely. The small load carriers must be arranged on the pallet in such a way that all labels of the small load carriers placed visible on the pallet from the outside can be read.

The labels for the entire pallet must be placed at the same position as for the cage pallet, i.e. on a small load carrier or on the encasement.

7.3.3 Cardboard box

The cardboard boxes must be arranged on the pallet in such a way that all labels of the cardboard boxes placed on the pallet and visible from outside can be read. The marking for the entire pallet must be placed at the same position as for the pallet, i.e. on a cardboard boxes or on the encasement.

7.3.4 Bag (or smallest load unit)

If the smallest load unit is a bag or something similar, it must also be labeled with the following minimum information:

- MAHLE part number
- Quantity
- Production date
- Best-before date (if required by the MAHLE plant)
7.4 Processing of empties

The supplier must ensure the early availability of the required transport containers for his delivery quantities by contacting the receiving plant early and ordering the required amount of reusable containers.

The transport containers must be used for the transport of the materials ordered and not for storage purposes. It needs to be defined in advance together with MAHLE how many days the supplier is entitled to have returnables for (see chapter 7.2). He must ensure that even in the event of missing transport containers, the supply for the MAHLE plants is secured.

7.5 Accounting for empties

Together with the responsible MAHLE container management, the supplier must execute a monthly balance of the empties accounts.

Packaging account statements will be established at the 10th working day of the month and made available to the supplier for balancing, assumed no other provisions have been made. The review of the account statement must be completed within 14 days.

7.6 Quantity differences of reusable packaging

Quantity differences or loss are to be compensated for immediately in accordance with the principle of causation at the value of replacement.
8. MAHLE Supply Concept

The MAHLE supply concept (MSC) describes the supply process incl. packaging and its circulating stock calculation as well as the delivery conditions, and is defined during the project phase in cooperation with the MAHLE receiving plant and the supplier.

The aim of the MSC is to establish and ensure a standardized, lean and stable supply chain from the outset.

8.1 Packaging data sheet

The packaging requirements as specified by the MAHLE plant are determined between the MAHLE receiving plant and the supplier in the packaging data sheet. The packaging data sheet provided by MAHLE to the supplier must be sent back to MAHLE before the first delivery.

If required, a packaging test must be executed in cooperation with the receiving plant. In addition to the standard packaging, alternative packaging must always be agreed upon with the receiving plant and documented under the “Alternative Packaging” tab on the form. Packaging changes must be coordinated in advance with the respective MAHLE plant.

Nonreturnable packagings must be used if no packaging was defined. The dimensions of the package must not exceed 1,200 x 800 x 1,000 mm and must be at least stackable twice.

Fig. 20: MSC – Packaging data sheet
8.2 Calculating the circulating stock of reusable packaging

The form is filled out based on the quantities to be supplied, transport times, delivery cycles, etc.

In the event that the supplier must procure reusable packaging, the form shows the quantity that the supplier needs to have ready for a functioning cycle. MAHLE must not advance anything. The MAHLE container management at the receiving plant is the contact point for questions regarding the process, etc.

Fig. 21a: MSC – Calculation of circulating stock of reusable packaging

Fig. 21b: Empties process
The type of delivery will be specified by the receiving MAHLE plant and the respective supplier and will be recorded on the form “Delivery Conditions”.

Upon consultation between MAHLE and the supplier, the delivery conditions may be adjusted to changes in the general conditions at a later date.

If required, the form will be made available to the supplier by the receiving plant.

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**8.3 Delivery conditions**

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![MSC - Delivery conditions](image)

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Fig. 22: MSC – Delivery conditions
9. Supplier Performance

9.1 Supplier evaluation

MAHLE evaluates the supplier capabilities.

The delivery reliability and the quality of the supplier will be measured and analyzed continuously. With respect to the supplier evaluation, it must be the objective of the supplier to achieve a delivery reliability of 100%, a quality evaluation of 100% and 0 ppm.

The requirements listed in the following will be used for the analysis of the logistics supplier evaluation:

**Delivery reliability**
- Date reliability (60%)—tolerance for date reliability:
  The time window for the delivery date will be coordinated with the receiving plant
- Quantity reliability (40%)—tolerance for quantity reliability:
  The quantity tolerance for the delivery quantity is agreed upon with the receiving plant

**Consignment**
- Inventory reliability (100%)—the inventory lies within the minimum and maximum limits agreed upon with MAHLE

In the course of the monthly supplier evaluation, the supplier receives the overall rating of the current month in %, as color-coded in the ABC categorization.

In addition, a diagram shows the development of the delivery service over the last 12 months according to quantity and punctuality and compliance with inventory limits in the case of consignment material. Lastly, the development of the overall delivery service of logistics over the past 12 months is also illustrated.

In addition to the tracking of punctuality and quantity reliability, the following process deviations are monitored in monthly reports:
- Special trips
- Incorrect deliveries
- Incorrect/missing shipping notifications
- Incorrect/missing delivery documents
- Incorrect/missing labels
- Deviations from the agreed packaging specification

These deviations are included in the escalation scenario described in chapter 8.3.
Lieferantenbewertung Logistik  
Supplier Evaluation Logistics

Muster GmbH

Monat / Month  03.2016  Datum / Date  10.06.2016  
Lieferant / Supplier  XXXXXXXX  Muster GmbH  
MAHLE Werke / Plants  2270 St. Michael ob Bleiburg

<table>
<thead>
<tr>
<th>Ort / Place</th>
<th>Gesamtbewertung / total evaluation</th>
<th>Lieferung / delivery</th>
<th>Konsignation / consignment</th>
<th>VMI</th>
</tr>
</thead>
<tbody>
<tr>
<td>2270 St. Michael ob Bleiburg</td>
<td>84</td>
<td>85</td>
<td>82</td>
<td></td>
</tr>
</tbody>
</table>

Termintreue / Mengentreue / VMI Bewertung / Konsignationsbewertung  
Adherence to dates / adherence to quantities / VMI score / Consignment evaluation

Logistikbewertung / Evaluation Logistics

Fig. 23: Supplier evaluation logistics
9.2 Transfer of process costs in the event of process deviations

A delivery performance close to 100% is essential in order to achieve lean processes within the MAHLE plants. Standardized and thus economical processes are only possible if the supplier reliably adheres to the agreed standards.

Each deviation from the defined procedures requires manual intervention and the use of a special process, which causes unnecessary additional expenses on the part of MAHLE.

Should there be an increase in deviations as described in the table below, then MAHLE reserves the right to charge the supplier with the following additional expenses incurred.

The supplier is entitled to produce evidence proving that no damage has been caused by fault on his part or the resulting damage is less than the amount specified by MAHLE.

<table>
<thead>
<tr>
<th>Deviation</th>
<th>MAHLE plant in DE, FR, GB, AT 100% [EURO]</th>
<th>MAHLE plant in RO, TR 60% [EURO]</th>
<th>Einheit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Incorrect or no delivery note/way bill/ material accompanying notes</td>
<td>90.00</td>
<td>54.00</td>
</tr>
<tr>
<td>2</td>
<td>Damage in transit</td>
<td>150.00</td>
<td>90.00</td>
</tr>
<tr>
<td>3</td>
<td>Incorrect delivery (delivery of a part number differing from the delivery note)</td>
<td>150.00</td>
<td>90.00</td>
</tr>
<tr>
<td>4</td>
<td>Differences in the quantity of the actual delivery and the quantities in the delivery note</td>
<td>130.00</td>
<td>78.00</td>
</tr>
<tr>
<td>5</td>
<td>Wrong/incomplete EDI data</td>
<td>140.00</td>
<td>84.00</td>
</tr>
<tr>
<td>6</td>
<td>Delivery differing from the packaging instructions</td>
<td>120.00</td>
<td>72.00</td>
</tr>
<tr>
<td>7</td>
<td>Wrong or missing label of a handling unit (big or small load carrier)</td>
<td>50.00</td>
<td>30.00</td>
</tr>
<tr>
<td>8</td>
<td>Damaged big load carrier</td>
<td>90.00</td>
<td>54.00</td>
</tr>
<tr>
<td>9</td>
<td>Damaged small load carrier (VDA SLC, tray etc.)</td>
<td>50.00</td>
<td>30.00</td>
</tr>
<tr>
<td>10</td>
<td>Special transport</td>
<td>110.00</td>
<td>66.00</td>
</tr>
<tr>
<td>11</td>
<td>Dirty packaging</td>
<td>50.00</td>
<td>30.00</td>
</tr>
<tr>
<td>12</td>
<td>Backlog/early delivery</td>
<td>150.00</td>
<td>90.00</td>
</tr>
</tbody>
</table>

Tab. 6: Transfer of process costs in the event of process deviations
9.3 Escalation scenario in the event of process deviations

As described above, noncompliance with standards in the delivery process impedes a consistently lean and efficient supply chain from the suppliers to the MAHLE plants.

Should an increase in deviations occur, then MAHLE follows the escalation scenario described below:

<table>
<thead>
<tr>
<th>Process deviation</th>
<th>Problem identification</th>
<th>Daily business: Procurement in the plant</th>
<th>Escalation level 1: Logistics Manager Plant/Supplier Management Logistics Plant/Plant Manager</th>
<th>Escalation level 2: Supplier Management Logistics BU2</th>
<th>Escalation level 3: Commodity Purchasing BU2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Special trips</td>
<td>Supplier needs to pay for the special freight, invoicing costs according to claims catalog, measures included in logistics complaint</td>
<td>Supplier needs to pay for the special freight, invoicing costs according to claims catalog, measures included in logistics complaint</td>
<td>TOP 5 worst suppliers of current month concerning special freight</td>
<td>TOP 5 worst suppliers of current month concerning special freight</td>
<td></td>
</tr>
<tr>
<td>Delivery of wrong parts (right label ↔ wrong content, mixed content)</td>
<td>Supplier needs to organize the return shipment by itself within one week, supplier needs to send the correct parts and pays for freight, invoicing costs according to claims catalog, measures included in logistics complaint</td>
<td>Supplier needs to organize the return shipment by itself within one week, supplier needs to send the correct parts and pays for freight, invoicing costs according to claims catalog, measures included in logistics complaint</td>
<td>TOP 5 worst suppliers of current month concerning special freight</td>
<td>TOP 5 worst suppliers of current month concerning special freight</td>
<td></td>
</tr>
<tr>
<td>Wrong advanced shipping notification (ASN), wrong delivery papers (e.g. delivery note)</td>
<td>Invoicing costs according to claims catalog, measures included in logistics complaint</td>
<td>Invoicing costs according to claims catalog, measures included in logistics complaint</td>
<td>TOP 5 worst suppliers of current month concerning logistics delivery standards</td>
<td>TOP 5 worst suppliers of current month concerning logistics delivery standards</td>
<td></td>
</tr>
<tr>
<td>Deviation of label from defined standard</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deviation from defined serial or alternative packaging</td>
<td></td>
<td></td>
<td></td>
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<td>Supplier evaluation: Over/underdelivery, early/late delivery, stock not between min./max.</td>
<td>Supplier needs to evaluate and organize the process deviation of the current month concerning over/underdelivery, early/late delivery, stock not between min./max.</td>
<td>Supplier needs to evaluate and organize the process deviation of the current month concerning over/underdelivery, early/late delivery, stock not between min./max.</td>
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Tab. 7: Escalation scenario
The first time one of the described deviations occurs, the problem is handled between procurement at the MAHLE plant and the supplier. Should problem occur more frequently and the respective supplier correspondingly appear in the “TOP5 worst supplier” list, a consultation at the first level of escalation takes place between the plant’s supplier management logistics and logistics manager together with the supplier, in which actions for remedying this problem are defined. This body also reviews the effectiveness and execution of the actions on the part of supplier. If the problem is effectively eliminated, the escalation is deemed completed and the status reset.

However, if it is ascertained that the effectiveness of actions are not consistent and the problem has not been remedied, then the central supplier management logistics intervenes with escalation level two.

This level analyzes why a problem persists and why the defined actions were not effective. Series purchasing is also informed about the poor logistics performance. An action plan is also derived from this escalation level, the adherence of which is constantly reviewed by MAHLE.

Should these measures also prove to be ineffective, the third and thus last escalation level is reached. The supplier is placed on the list of suppliers banned by logistics. At this level, series purchasing has to decide whether the supplier receives the “new business hold” status or whether to invest intensively in supplier development.
10. Inventory

A physical inventory will be executed annually for the in-stock assets (sub-contracting parts, transport containers, tools, etc.). This requires an annual balance of the book inventory balance with the actually available stocks. The supplier is obligated to provide the counting for the execution of the inventory tracking.

The inventory lists of parts, transport containers and tools have to be sent after the inventory unrequested to MAHLE.

Quantity differences or shrinkage must be paid immediately in accordance with the causer-pays principle based on the repurchasing value.
## 11. History

<table>
<thead>
<tr>
<th>Version</th>
<th>Date</th>
<th>Changes/History</th>
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<tr>
<td>1</td>
<td>03/2009</td>
<td>First version of Logistic Guideline of MAHLE Filtersysteme GmbH</td>
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<td>2</td>
<td>03/2010</td>
<td>Chapter 2: New plants Austria (page 5)</td>
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<td>Chapter 8: New graphics (page 31/32)</td>
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<td>3</td>
<td>01/2012</td>
<td>Chapter 2: New plant Germany (page 5)</td>
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<td>Chapter 3.6: Guideline for missing shipping notification (page 12)</td>
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<td>Chapter 4.2: Disappearance of barcode on delivery note (page 16/17)</td>
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<td>Chapter 6.2: Update of packaging data sheet (page 25)</td>
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<td>Chapter 8: Update of quality evaluation (page 30)</td>
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<td>Update of graphics (page 31/32)</td>
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<td>5</td>
<td>08/2012</td>
<td>Chapter 2: Change of incoming good times of MAHLE Filter Systems UK Ltd. (page 6)</td>
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<td>Complete revision of the logistics guideline</td>
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<td>Chapter 4.6.1: Adaption to VDA standard 4994</td>
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<td>Chapter 4.6.3: Purchase order/scheduling agreement number and position not mandatory on the shipping order</td>
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<td>Chapter 5.3.6: Adaption of unloading in Mattighofen</td>
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<td>Chapter 6: Integration foreign trade issues: duties, origin, supply chain security and export control</td>
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<td>Chapter 7.1: Adaption of the requirements to the packaging</td>
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<td>Chapter 7.3: The labels need to be attached at the front and loss-proove, all labels placed on the pallet and visible from outside need to be readable</td>
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<td>Chapter 7.4: Change in mandatory fields on a bag</td>
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<td>Chapter 4.6.1: Change in Figure 12</td>
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<td>Chapter 2: Adaptation of the plants concerned (page 7)</td>
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<td>Chapter 3: Reference to GTL Directive (page 10)</td>
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Tab. 8: Change history Logistic Guideline