

ADVANCED COATING EQUIPMENT

LOGISTICS GUIDELINE AS PER 03/2024



1 PREAMBLE

All deliveries to VON ARDENNE, unless otherwise agreed, must be carried out as described in the currently valid edition of this logistics guideline.

The logistics guideline defines the logistical services required at VON ARDENNE in order to ensure the smooth flow of materials and information and to achieve continuous improvement in quality, delivery performance, and cooperation with suppliers.

The supplier is responsible for compliance with and observance of logistics requirements. The supplier must also ensure that the logistics guideline is also followed by their subsuppliers.

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APPENDICES

2 THE LEVELS OF VON ARDENNE LOGISTICS

The six levels of VON ARDENNE logistics form the logistical pillars of cooperation with suppliers and logistics service providers. They model the requirements and interfaces to our partners. The following chapters explain the individual levels of VON ARDENNE logistics in detail. (Fig. 1)



Fig. 1

THE LEVELS OF VON ARDENNE LOGISTICS

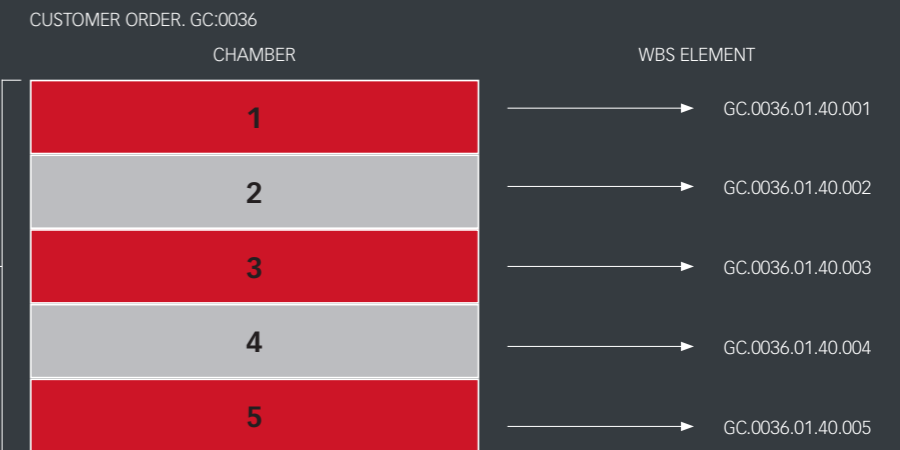


Fig. 2

2.1 LEVEL 1: WBS ELEMENTS

The work breakdown structure (WBS) breaks down the object of the customer order into its physical components, the individual WBS elements. These describe a product-oriented work process with specifications of the assembly period. It is the basis for process, schedule, and cost planning and is prepared before the actual start of the customer order.

Simplified example of WBS element assignment: A customer order with the project ID "GC.0036" describes a system consisting of five chamber modules. The system is correspondingly broken down into five components. Each component is assigned a WBS element ID. (Fig. 2)

The assembly duration for each chamber or each WBS element is determined to be five working days. Based on this data and in coordination with capacity planning, we can calculate the procedures, deadlines, and resulting costs for on-schedule completion of the customer order.

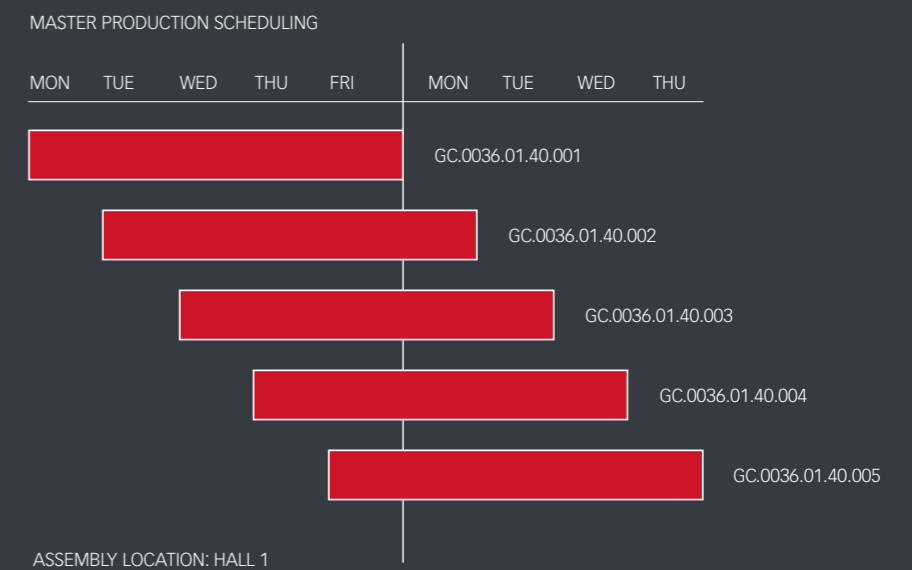


Fig. 3

2.2 LEVEL 2: CLOCKED ASSEMBLY

After definition of all WBS elements, they are related in both time and location, that is, the individual WBS elements are assigned to specific assembly start times and fixed cycle times and assembly locations in the production plan. The cycle time determined corresponds to the predefined cycle time.

The production plan gives corresponding information to the day about which WBS elements will be assembled when, for how long, in which areas. On the basis of production planning a disposition plan can be created which defines the delivery cycles for each WBS element (for example delivery twice daily to the assembly location).

The advantages of this approach include optimum usage of existing space and shorter cycle times.

Together with supply category management, clocked assembly thus contributes to the ability to reduce inventory of material for assembly, and thus the amount of capital bound, to the minimum absolutely required for operations.

Example of production planning (Fig. 3): CUSTOMER ORDER GC.0036

2.3 LEVEL 3: SUPPLY CATEGORIES

At VON ARDENNE, materials are broken down into five supply categories (SC):

SUPPLY CATEGORY 1: JUST IN SEQUENCE (JIS) – PARTS THAT DEFINE DEADLINES

Supply category 1 at VON ARDENNE includes all items that trigger the assembly process, such as chambers, pump lids, or magnetron lids. Due to their nature as well as their cost intensity, these items are ordered specifically for each project, that is, the order is placed for a specific number of parts required for consumption and they are not stocked in advance.

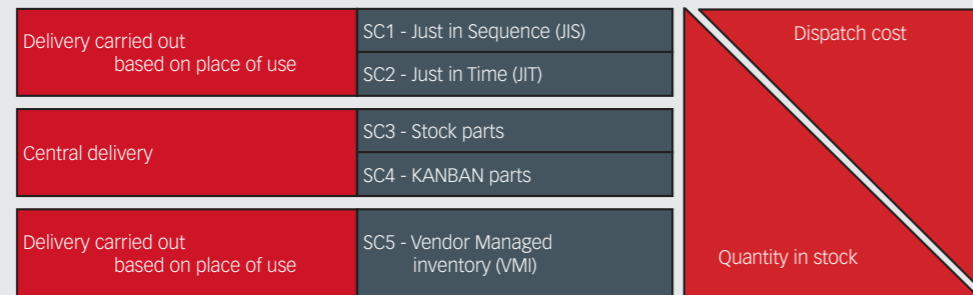


Fig. 4

Delivery takes place based on long-term prior planning as needed and on a specific date in the required order, directly to the production location where they will be used. Ideally, items in supply category 1 are not stored in a warehouse at either a supplier or at VON ARDENNE. If that is not possible, delivery should be made to a defined logistics warehouse that will ensure need-based delivery on call to the place of use.

Both during procurement and during dispatch, this supply category requires a particularly high level of coordination with the supplier and/or the logistics service provider in order to meet the timely delivery requirements of production parts to the place of use.

SUPPLY CATEGORY 2: JUST IN TIME (JIT) – SCHEDULE-FOLLOWING PARTS

Materials in this supply category are delivered to the responsible logistics service provider, who stores them and therefore takes responsibility for stocking these items. The inventory data of the logistics service provider can be retrieved by VON ARDENNE at any time. Based on medium-term prior planning, the logistics service provider guarantees their need-based, timely delivery to the production location of use that can be requested on a short-term basis

To ensure the smooth functioning of the logistics chain between the supplier, the logistics service provider, and VON ARDENNE, the **delivery note requirements** (see 4.1) and the **requirements for labeling of goods** (see 4.3) must always be followed.

Unlike supply category 1, items must be delivered to VON ARDENNE no more than five days before their use in assembly, and stored in the supermarket at the production location. Supply category 2 is used for purchased products/finished parts and high-quality assembly parts, as well as for parts that, due to their specialization for the product to be produced, must be at the assembly location on time.

Items in supply category 2 are purchased analogously to those in supply category 1, with specific project reference, that is, there is no stock of these items maintained. As a result – just as for supply category 1 – there is a high level of coordination effort for their purchase and dispatch.

SUPPLY CATEGORY 3: STOCK PARTS

Materials in this supply category are dispatched in economically optimum lot sizes and delivered directly to the arrival area of the central goods receiving department at VON ARDENNE. This supply category includes identical items that require only a low level of coordination with the supplier, but whose use is subject to large fluctuations. These items are also not product-specific, they are of relatively low cost, and they cannot be assigned directly to any specific project (for example, semifinished products or catalog items). This is why there is no WBS element shown for these items in our purchase orders.

SUPPLY CATEGORY 4: KANBAN PARTS

The procurement and warehousing of items in supply category 4 are similar to those for the stock parts in supply category 3 – they are purchased without a project reference by lot size. Unlike supply category 3, however, materials are provided at the place of use based on the pull or kanban principle. The user then uses a card or the empty container to request material resupply, either from the central warehouse at VON ARDENNE or directly from the supplier. Supply category 4 primarily includes catalog parts that are not assigned to supply category 5 VMI.

SUPPLY CATEGORY 5: SUPPLIER KANBAN / VENDOR MANAGED INVENTORY (VMI)

Materials in this supply category are also provided and restocked on the kanban principle. However, they are not procured internally within the company, but by a service provider. This category includes the classical C parts, that is, small parts such as screws or other fastening elements. To ensure a sufficient supply of these materials, the cooperation partner must be provided with information about future demand trends.

2.4 LEVEL 4: DELIVERY SUBJECT TO INCOTERMS® 2020 FCA (FREE CARRIER)

Suppliers whose deliveries must be handled according to INCOTERMS® 2020 FCA will receive a routing order from VON ARDENNE. This document assigns the supplier to a logistics service provider. The supplier must package deliveries properly for transport. The requirements described in this logistics guideline under points 4.1 and 4.3 must be followed for the delivery note and/or labeling of goods.

The instructions in point 6.3 must be followed for selecting the delivery address. Deliveries



from EU countries with a weight above 31.5 kl must be registered without exception by sending an e-mail to shipping@vonardenne.biz. You will then receive shipping instructions.

2.5 LEVEL 5: CONTAINER MANAGEMENT

The main component of container management is coordinating the smooth operations and ensuring that transport aids and packaging are reused. Container management should ensure inventory overview, inventory maintenance and empties management as well as define the individual processes for transport aids and packaging. Chapter 5 of this logistics guideline contains more extensive information as well as the packaging manual, which can be found in the download area on our homepage: <https://www.vonardenne.biz/en/suppliers/supplier-portal/>.

2.6 LEVEL 6: TACTICAL DELIVERY PLANNING

The core of tactical delivery planning is the readiness of the supplier and the logistics service provider to work together to control the planning, forecasting, and provisioning processes at VON ARDENNE. The operational subprocesses are oriented towards a coordinated objective and linked together. Tactical delivery planning relies on close cooperation and intensive communication between the business partners involved. This cooperation can be broken down into the following steps:

- Definition and communication of requirements for the assembly processes at VON ARDENNE
- Determination of requirements for the logistics service provider
- Description of the procedure for deliveries of assembly material in accordance with supply categories:
 - Presorting of items delivered to the logistics service provider by WBS element, goods receiving posting into the warehouse management system of the logistics service provider, and loading of that data into the materials management system at VON ARDENNE
 - Retrieval of a WBS element by VON ARDENNE in accordance with the schedule chain specified in the production plan; determination of the place of use associated with the WBS element
 - Delivery of the item for a WBS element by the logistics service provider as follows:

Project-related items (SC1, SC2)	Items that are not project-related (SC3, SC4, SC5)
SC1: Delivery to the assembly bay	SC3/4: Delivery to Central Goods Receiving at VON ARDENNE
SC2: Delivery to the supermarket for the specific place of use	SC5: Delivery by the supplier directly to the place of use

The basis for smooth handling of these steps are the requirements for the delivery note (see 4.1).

3 SUPPLY AND WAREHOUSING SYSTEMS AT VON ARDENNE BY SUPPLY CATEGORY

Each production hall has a **supermarket**. This is a warehouse with a material reserve of five days. Assembly material stored in the supermarket is brought to the provisioning area. The **provisioning area** contains one day's quantity of assembly material for an assembly bay, that is, at the end of one assembly day the provisioning area is completely empty. Each assembly bay is assigned a corresponding provisioning area (Fig. 6).

Deliveries of goods to VON ARDENNE should also satisfy the requirements set out in the following chapters.

For directions how to reach the VON ARDENNE headquarters at Dresden Weißig, see Fig. 5.

DELIVERY AND WAREHOUSING SYSTEMS AT VON ARDENNE BY SUPPLY CATEGORY



The **assembly area** is the location where assembly is carried out. Only assembly process triggering items (SC1) and supplier-controlled kanban items (SC5) are delivered here.

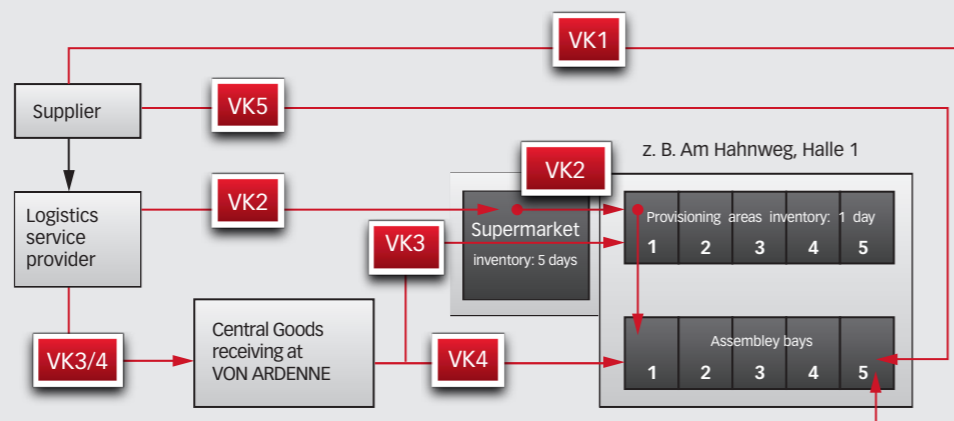
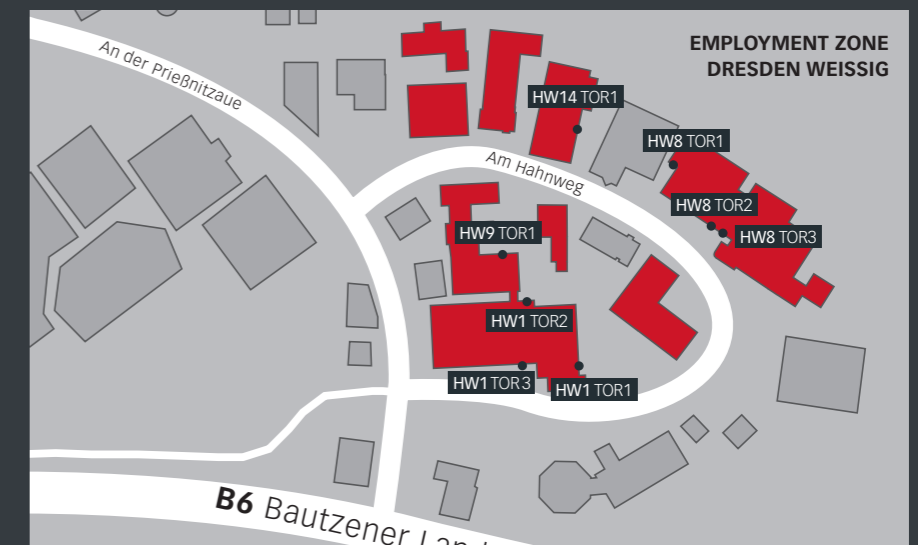


Fig. 6: Tactical delivery planning by supply category



« Direction Dresden

Fig. 5

4 SHIPPING DOCUMENTATION

The protection of shipping documentation from the influences of weather and preservation of their legibility must be ensured, for example by using plastic sheet protectors. Shipping documents from prior deliveries must be removed.

4.1 DELIVERY NOTE

Each shipment must be accompanied by a single copy of the delivery note in a clearly visible location, or the delivery note must be provided to VON ARDENNE before unloading the goods.



SHIPPING DOCUMENTATION

The delivery note must include the following data (see Appendix 3):

- Name of the supplier
- VON ARDENNE order number and order line item
- VON ARDENNE parts designation and VON ARDENNE item number
- VON ARDENNE project name (WBS element, to be found on the order line item)
- The supplier's lot number or serial number of the supplier (ideally as a barcode)
- Number of packages
- Net and gross weight of the entire shipment and of each individual package
- Statistical material number (customs tariff number) and origin of each item

For shipments with multiple packages, the package with the delivery note must be clearly labeled.

4.2 PACKING LIST

For shipments with multiple packages or pallets, a packing list is to be attached in addition to the delivery note for each individual transport unit. The packing list must include the following data (see Appendix 1):

- Number of the package or pallet
- VON ARDENNE order number and order line item
- VON ARDENNE item number
- VON ARDENNE project name (WBS element)
- Number and contents of each individual package
- Reference to VON ARDENNE packaging material, if any (special packaging, support frames, etc.)

4.3 LABELS

Item labels must be attached in a suitable location and clearly visible without hindering the function of the goods. Vacuum parts and sealing surfaces may not be used to attach labels.

Labeling must be carried out in such a way that every item can be uniquely identified and/or that it can be clearly seen that it belongs to a project. Therefore, each item label must contain the following information:

- VON ARDENNE item number
- Delivery note number
- Delivery note line item

4.4 CONSIGNMENT NOTE

A proper consignment note and shipping documentation must be provided to the transport contractor. Each delivery must be provided with a transport order that is sent to the shipping company. The transport order must include the following shipment specification (see Appendix 1):

- VON ARDENNE delivery address (not the billing address!)
- Sender (supplier information)
- VON ARDENNE order number
- Number of packages in the shipment
- Total weight of the shipment
- The date of handoff or shipping of the shipment

4.5 CUSTOMS DOCUMENTATION

For delivery of goods from non-EU countries, complete customs documentation must be attached.

- Invoice
- Packing list
- Consignment note
- If applicable, preferential certificates or documents of origin
- Safety data sheet (both in German and in English language)

The supplier is responsible for the proper preparation of all documents needed for customs procedures. He must provide these documents to the transport company.

Prior notification of shipments from other nations must be sent to VON ARDENNE with all applicable documentation.

4.6 HAZARDOUS MATERIALS

Every hazardous material must be labeled and packaged in accordance with the Ordinance on Hazardous Substances. The respective safety data sheet for each hazardous material must be transmitted digitally to VON ARDENNE (both in German and in English language) prior to shipment: shippingnotes@vonardenne.biz

4.7 SUBASSEMBLIES

Subassemblies are goods that consist of individual parts and that are delivered either completely assembled, partly assembled or not assembled. A subassembly must be labelled as a SET by the supplier.

The supplier is responsible for ensuring a proper incoming goods inspection by VON ARDENNE. Therefore, each subassembly SET shall be packaged individually (see Appendix 5 and 6) and labelled with the respective VON ARDENNE item number. If an outer packaging is not possible for a good reason, the individual parts of subassemblies that are not fully assembled must be labelled clearly and a bill of materials (BOM) must be enclosed that lists the individual parts. In that case, the delivery note must include the subassembly and the respective parts including the quantities (see Appendix 4).

If a subassembly is spread over multiple load carriers, each loading carrier must contain a respective packing list (e.g. BOM with highlighted individual parts) and must be labelled to show which part of the consignment it contains (e.g. pallet 1 of 3).

5 CONTAINER MANAGEMENT

5.1 GENERAL INFORMATION

Requirements for packaging are defined in the VON ARDENNE packaging manual.

This is available in the download area of our supplier portal on our homepage:

<https://www.vonardenne.biz/en/suppliers/supplier-portal/>.

The packaging dimensions must be such that they ensure sufficient protection of the goods from damage during transport. If no particular delivery requirements apply, VON ARDENNE always requires the use of reusable packaging.

Undamaged, pool-capable reusable containers, such as Euro pallets or grate boxes, are primarily to be used for this purpose. When using non-pool-capable reusable containers, ensure that the 4-way accessibility is a given with all (standard) industrial trucks and storage systems.

Shipments that do not meet the requirements of the VON ARDENNE logistics guideline or the VON ARDENNE packaging manual will be returned. If this is not possible for scheduling reasons, VON ARDENNE will handle their repackaging. Any resulting costs will be invoiced to the supplier. Repackaging may also be carried out by the supplier at VON ARDENNE's facilities for VON ARDENNE free of charge if necessary, after prior coordination.

5.2 REPLACING PACKAGING

When delivering shipments on undamaged, pool-capable reusable containers, such as Euro pallets or grate boxes, these are exchanged for the empty ones with the supplier, insofar as no other agreements have been made between the supplier and VON ARDENNE. Upon delivery by the preferred forwarding agent (delivery condition FCA Incoterms® 2020), the forwarding agent exchanges the Euro pallets upon pick up from the supplier.

If stacking frames or comparable packaging aids are used, this is to be noted on the delivery note with the corresponding quantity. In case of direct deliveries, an exchange for the empty frames takes place at the goods receipt of VON ARDENNE. In case of deliveries performed by the preferred forwarding agent, the frames cannot be exchanged by the forwarding agent. These frames are collected at VON ARDENNE and picked up or returned to the supplier depending on the agreement.

5.3 LABELING AND RETURN OF PACKAGING

All other packaging (e.g. larger transport boxes, crates or lids) that are to be provided by the supplier and sent back to the supplier must be labeled accordingly. The labeling with the supplier's company name should be securely attached to the long sides of the packaging to be clearly visible. Ensure that the label is well-protected against weathering, mechanical or other influences. Application directly to the packaging, for example with paint, is recommended. The packaging provided by the supplier is collected at VON ARDENNE and sent back to the supplier. If there is no labeling visible on the packaging, the return shipment cannot occur. If the supplier's own packaging is used for shuttle traffic, prior coordination between the supplier and VON ARDENNE is needed to ensure a smooth process.

6 DELIVERY

6.1 GENERAL INFORMATION

Transport and insurance costs will be accepted in accordance with the agreed terms of delivery (INCOTERMS® 2020). Higher transport costs resulting from changes to the shipping type specified in this guideline (see 5.) will only be acknowledged by VON ARDENNE if such a shipping type is explicitly specified by VON ARDENNE.

DELIVERY



6.2 DELIVERY TERMS

The delivery terms agreed in the order shall apply. Any additional costs resulting from failure to observe those terms will be invoiced to the supplier.

Special requirements for the INCOTERMS® 2020 FCA delivery requirement: Shipments up to 31.5 kg must be shipped with the package service provider specified by VON ARDENNE and shipping costs billed. Shipments over 31.5 kg must exclusively be provided to the transport contractor specified by VON ARDENNE for transport.

6.3 DELIVERY ADDRESS

The delivery address can be found in the order header of the order if all items are to be sent to the same delivery address.

If the items listed in the order are to be sent to different delivery addresses, you will find the delivery address noted on the individual order items. Please refer to the examples in Appendix 1 and 2.

Unless otherwise agreed, the delivery address is:

VON ARDENNE GmbH
Receiving department
Am Hahnweg 14
01328 Dresden

6.4 BUSINESS HOURS

The VON ARDENNE goods receiving stations are available from Monday to Friday during the following business hours:

Am Hahnweg 14, 01328 Dresden:	07:00 a.m. - 03:30 p.m.
Bautzner Landstr. 386, 01328 Dresden Rossendorf:	07:00 a.m. - 02:00 p.m.
Niedersedlitzer Straße 75, 01257 Dresden:	07:00 a.m. - 03:30 p.m.

If you are not able to deliver during these hours, please contact our goods receiving department. See 6.5 for contact details.

6.5 CONTACT

Zentrale Warenannahme Weißig - VON ARDENNE GmbH
Am Hahnweg 14
01328 Dresden

Zentrale Warenannahme Niedersedlitz - VON ARDENNE GmbH
Niedersedlitzer Straße 75
01257 Dresden

Außenlager Rossendorf
Bausstoffwerke Nowotnik
c/o VON ARDENNE GmbH
Bautzner Landstraße 386
01328 Dresden Rossendorf

If you have any questions about delivery, please contact our warehouse team::
Telefon: 0351 2637 – 488
Fax: 0351 2637 – 641
E-Mail: WAREHOUSE@vonardenne.com

If you have any questions about transport and shipping matters,
please contact our logistics team:
E-mail: LOGISTIC_PLANNING@vonardenne.com

6.6 DELIVERY QUANTITIES AND ADHERENCE TO DELIVERY DATES

The supplier is obligated to comply with the quantities and delivery dates agreed upon with VON ARDENNE in the purchase order. VON ARDENNE reserves the right to reject deliveries made more than five workdays before the agreed date. All costs resulting from an premature acceptance will be invoiced to the supplier. Deliveries before or after the confirmed date will be recorded as not compliant with schedule and this will influence supplier evaluations.

7. FINAL REMARK

Compliance with these transport and packaging guidelines will be checked by the VON ARDENNE goods receiving department.


The following circumstances, among others, will result in the issue of a defect protocol that will influence supplier evaluations:

- Incorrect or missing order number
- Incorrect or missing item number
- Incorrect or missing VON ARDENNE project ID (WBS element)
- Incorrect or missing order line item
- The delivery of incorrect or defective products
- Missing delivery note
- Missing or incorrect labelling



APPENDIX 1

EXAMPLE: DELIVERY NOTE
(Identical delivery address for all order line items)

VON ARDENNE 

Phone +49 351 2637 300 | Fax +49 351 2637 308 | office@vonardenne.biz | www.vonardenne.biz
Geschäftsführer | Executive Management: Pia von Ardenne-Lichtenberg

Purchase order

PO number: 4500105477

Date: Feb 2, 2022 Page 2 of 2


Item	Quantity	Unit	Material number	Delivery date	UP in EUR Discount (%)	Total price in EUR
10	4	Piece	1200096367 conveyor roller - 50 mm Your material no.: EES 0267-SD Drawing number: 1-1016G-15-310100-00 WBS: PV.0158.01.40.201			

Delivery address:
Schenker Deutschland AG
c/o VON ARDENNE GmbH
Geschäftsstelle Dresden / Radeberg
Christoph-Seydel-Straße 1
01454 Radeberg

Item	Quantity	Unit	Material number Your material number Drawing number Basic material Subject Account assignment	Delivery date	UP in EUR Discount (%)	Total price in EUR
10	4	Piece	1200096367 EES 0267-SD 1-1016G-15-310100-00 conveyor roller - 50 mm WBS: UP.0049.01.60.801			
20	1	Piece	1200096367 EES 0267-SD 1-1016G-15-310100-00 conveyor roller - 50 mm			

APPENDIX 2

EXAMPLE: DELIVERY NOTE
(Different delivery addresses for order line items)

VON ARDENNE 

Phone +49 351 2637 300 | Fax +49 351 2637 308 | office@vonardenne.biz | www.vonardenne.biz
Geschäftsführer | Executive Management: Pia von Ardenne-Lichtenberg

Purchase order

PO number: 4500105477

Date: Feb 2, 2022 Page 2 of 2

Item	Quantity	Unit	Material number	Delivery date	UP in EUR Discount (%)	Total price in EUR
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10	4	Piece	1200096367 conveyor roller - 50 mm Your material no.: EES 0267-SD Drawing number: 1-1016G-15-310100-00 WBS: PV.0158.01.40.201			
<u>Delivery address:</u> Schenker Deutschland AG c/o VON ARDENNE GmbH Geschäftsstelle Dresden / Radeberg Christoph-Seydel-Straße 1 01454 Radeberg						
20	1	Piece	1200096367 conveyor roller - 50 mm Your material no.: EES 0267-SD Drawing number: 1-1016G-15-310100-00			
<u>Delivery address:</u> VON ARDENNE GmbH Zentrale Warenannahme Am Hahnweg 14 01328 Dresden						

The sample order contains **both general consumables** (items with not project assignment, items 160 and 170) **and items for a specific project**. Therefore there are no PSP elements on the order line item for items 160 and 170. These items can therefore be packed together. Item 150, on the other hand, has both a PSP element and a different delivery address. This item must therefore be packed separately and shipped to a different delivery address.

APPENDIX 3


EXAMPLE: DELIVERY NOTES FOR APPENDIX 2

Sample Ltd.
Samplestreet 1a
12345 Samplecity

VON ARDENNE GmbH
Zentrale Warenannahme
Am Hahnweg 14
01328 Dresden

Date: 18.05.2023

Delivery Note No. 123456
Your Purchase Order / Project: **4500006099 / no project**

Order Pos.	Quantity	Material Number Designation	Charge/ Serial Number	Customs tariff number Origin Weight (N/B)
160	4	1200158079 tube		83564597 Belgium 40 kg / 47 kg
170	4	1200158113 adapter TSD 80		24568456 USA 5 kg / 10 kg

Weight (net/brutto): 45 kg / 57 kg
Number of packages: 2
Shipping: FCA
Carrier: Spedition Schenker


.....
Date / Signature

Sample Ltd.
Samplestreet 1a
12345 Samplecity

VON ARDENNE GmbH
c/o Schenker Deutschland AG
Christoph-Seydel-Straße 1
01454 Radeberg

Date: 18.05.2023

Delivery Note No. 123456
Your Purchase Order / project: **4500006099 / XD.0123.20.001**

Order Pos.	Quantity	Material Number Designation	Charge/ Serial Number	Customs tariff number Origin Weight (N/B)
150	4	1200157722 housing		567589645 Germany 80 kg / 92 kg

Weight (net/brutto): 80 kg / 92 kg
Number of packages: 1
Shipping: FCA
Carrier: Spedition Schenker

.....
Date / Signature

APPENDIX 4

EXAMPLE: DELIVERY NOTE SUBASSEMBLY WITHOUT OUTER PACKAGING:

Order Pos.	Quantity	UOM	Designation
10	1,00	SET	hood heating unit 1200000815 <u>consisting of:</u> 2x 1200190018 2x 1200190019 8x 1200190020

Correct: delivery note with bill of materials

APPENDIX 5

EXAMPLE: SUBASSEMBLY PACKAGING, LARGE PARTS



WRONG: All individual parts of the subassembly are packaged together and the labels are not allocated.



RIGHT: Subassemblies are packaged individually and labelled with a VON ARDENNE materials label each.

APPENDIX 6

EXAMPLE: SUBASSEMBLY PACKAGING, SMALL PARTS



WRONG: The packaged parts are sorted and labelled with the material number of the supplier.



RIGHT: The parts are packaged per SET and labelled with the VON ARDENNE item number of the respective subassembly.

OUR STRENGTHS



IN-HOUSE TECHNOLOGY & APPLICATION CENTER

- ... Sample coatings of customer applications
- ... Development of customized layer stacks
- ... Product & process verification and optimization
- ... Testing of new technologies and components



GLOBAL PROJECT EXPERIENCE

VON ARDENNE equipment is used in over 50 countries. We have established an installed base of hundreds of coating systems worldwide, ranging from small tools to equipment for large-area coating applications for several markets.



CLOSE PARTNERSHIP

VON ARDENNE has a network of partners for even more profound R&D work and to identify future technologies. It consists of:

- ... Fraunhofer Institutes such as IPMS, FEP, IST and ISE
- ... Institutes of the Helmholtz Association (Jülich, Berlin)
- ... Universities (Kiel, Dresden, Sheffield)
- ... Companies such as FAP GmbH, scia Systems GmbH



PROFESSIONAL SIMULATION SUPPORT

We offer professional simulation technology to ensure best process quality with regards to plasma, heat and cooling. Furthermore, our simulation tools help demonstrate, develop and improve layer properties and define or optimize processes, details and the performance of our systems.



COMPREHENSIVE SERVICE PORTFOLIO

- ... VON ARDENNE service hubs around the world
- ... On-site service
- ... Remote access by our technology department
- ... Regular technical and technological trainings
- ... Spare & wear part warehouse close to customers
- ... Lifecycle extension of wear parts



UPGRADES & RETROFITS

As soon as your business is growing, your VON ARDENNE equipment will grow accordingly - thanks to its modular design and the upgrades we provide. We will also supply you with the necessary technology upgrades if you decide to change your applications. Furthermore, when your equipment is ageing, we will retrofit your systems with new components, no matter if they are VON ARDENNE or third-party machines.



PRODUCT TOPICS



PRODUCT INDEX



COMPONENTS



vonardenne.com

WHO WE ARE & WHAT WE DO

VON ARDENNE develops and manufactures industrial equipment for vacuum coatings on materials such as glass, wafers, metal strip and polymer films. These coatings give the surfaces new functional properties and can be between one nanometer and a few micrometers thin, depending on the application.

Our customers use these materials to make high-quality products such as architectural glass, displays for smartphones and touchscreens, solar modules and heat protection window film for automotive glass.

We supply our customers with technologically sophisticated vacuum coating systems, extensive expertise and global service. The key components are developed and manufactured by VON ARDENNE itself.

Systems and components made by VON ARDENNE make a valuable contribution to protecting the environment. They are vital for manufacturing products which help to use less energy or to generate energy from renewable resources.



SALES CONTACTS



SERVICE CONTACTS

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