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Postgraduate Studies

ERP systems - SAP S/4HANA track

Postgraduate thesis

Advanced Return Management - configuration and analysis of functionality

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1. INTRODUCTION

1.1 SCOPE AND OBJECTIVE OF THE THESIS

The objective of this thesis is to examine the configuration and functionality of Advanced Return Management (ARM) within the SAP S/4HANA environment, with a particular focus on its practical implementation and associated business benefits. This study aims to provide a thorough overview of how ARM enhances the standard return process and facilitates more efficient handling of various types of returns.

The scope of the research includes an in-depth comparison between standard return processes and ARM functionality across different return types, including customer returns, supplier returns, and stock transfer returns. The thesis outlines the configuration process in SAP, highlighting the key system components essential to ARM implementation.

By analyzing real-world case studies and system demonstrations, this work aims to deliver both theoretical insights and practical guidance regarding the use of ARM in SAP. The goal is to illustrate the implementation process and assess the extent to which this solution contributes to greater operational efficiency.

1.2 OVERVIEW OF RETURN PROCESS IN SAP

In SAP, return processes play a critical role in logistics and supply chain management by enabling organizations to manage the return of goods efficiently and accurately. Returns may be initiated for a variety of reasons, including but not limited to damaged goods, incorrect deliveries, excess quantities, product defects, or customer dissatisfaction

SAP offers support for a variety of return processes, including:

- Customer returns - handling the return of goods from customers after delivery.
- Supplier returns- managing the return of goods to vendors after a purchase.
- Stock transfer returns- internal returns between different plants or storage locations.

Each of these processes follows a series of steps, including the creation of documents (such as return orders, delivery notes, and credit memos), goods movement, and posting of accounting entries. In the standard setup, these processes are managed separately within their respective modules, often requiring additional manual steps or custom developments to align them with complex business requirements. While the standard return functionalities in SAP are robust, they can be fragmented, inflexible, and lack full integration between departments. Advanced Return Management (ARM) streamlines and standardizes the returns process, offering greater control, transparency, and enhances return processing capabilities across different return scenarios in a unified and configurable framework.

1.3 STANDARD RETURN PROCESS VS. ADVANCED RETURN MANAGEMENT (ARM)

In the standard SAP configuration, return processes are managed independently within designated modules. For instance, the Sales and Distribution (SD) module oversees customer returns, while the Materials Management (MM) module manages supplier returns. These processes generally consist of multiple steps and document flows, including return sales orders, outbound deliveries, goods receipt postings, and credit or debit memos. Each process must be manually tracked, and any deviation from the standard flow often requires custom development or manual intervention.

While the standard return process in SAP is functional, it has several limitations:

- Lack of integration between different types of returns.
- Minimal support for return logistics such as inspection or quality checks.
- No centralized overview of return-related activities.
- Limited process flexibility and reuse of return reasons or scenarios.

The Advanced Return Management (ARM) framework was developed to address these challenges by providing a unified and highly configurable system for managing returns across all relevant business areas. ARM facilitates the management of customer returns, supplier returns, and stock transfer returns within a unified return order process, thereby enabling the comprehensive oversight of all pertinent activities from a centralized document, designated as the Advanced Return Order (ARO).

Key improvements offered by ARM include:

- Centralized return processing across SD, MM, and internal logistics.
- Enhanced process visibility with tracking of inspection, approval, and logistics steps.
- Support for flexible follow-up activities (e.g., replacement, refund, scrapping).
- Better integration with quality management and warehouse processes.
- Reduced number of documents and simplified process handling.

By standardizing return processes and making them more transparent and configurable, ARM significantly improves operational efficiency, data accuracy, and customer satisfaction.

Table 1. Differences between standard return process and ARM

Feature	**Standard Return Process**	**Advanced Return Management (ARM)**
Process Scope	Separated by module (SD/MM)	Unified, cross-module
Document Flow	Requires manual handling	Automated follow-up document generation
Integration	Limited	Strong integration (QM, WM, SD, MM)
Flexibility	Low	High – configurable follow-up actions
Return Tracking	Manual or partial	Centralized and automated
Quality Inspection Support	Minimal	Integrated inspection handling

Source: Own elaboration based on [5]

1.4 KEY BENEFITS OF IMPLEMENTING ADVANCED CUSTOMER RETURN

The implementation of Advanced Return Management (ARM) within the SAP framework brings significant improvements to the way organizations handle return processes. By consolidating and enhancing the management of returns across a range of business scenarios, ARM achieves both operational efficiencies and strategic advantages.

The key benefits include:

1. Centralized Return Handling - ARM enables the management of customer, supplier, and stock transfer returns through a single process framework. This centralization reduces system complexity and streamlines coordination between departments.
2. Improved Process Visibility and Control - With the use of the Advanced Return Order (ARO), all return-related steps from initial request to follow-up action are visible in one document. This allows users to track the return process more effectively and reduces the risk of delays or lost documentation.
3. Flexible Follow-Up Activities - ARM enables predefined and configurable follow-up actions such as replacement, refund, repair, or scrapping. This flexibility supports various business needs and improves customer satisfaction by enabling faster and more accurate responses.
4. Integration with Quality Management and Logistics - ARM integrates seamlessly with SAP modules such as Quality Management (QM), Warehouse Management (WM), and Sales and Distribution (SD). This ensures that returned goods can be inspected, stored, or disposed of according to defined rules and quality standards.
5. Reduced Manual Effort and Error Risk - By reducing the number of transactions and documents required to process returns, ARM lowers the chance of human error and improves data accuracy. Automation of tasks such as approvals, inspections, and posting improves efficiency and consistency.
6. Enhanced Customer Experience - Faster processing of returns, transparent communication, and flexible handling of complaints or damaged goods contribute to a better overall customer experience and stronger business relationships.
7. Cost Optimization - Efficient return processing reduces administrative overhead, avoids unnecessary inventory movements, and helps recover value from returned goods through reuse, resale, or proper disposal.

1.5 STRUCTURE OF THE THESIS

The practical section focuses on the configuration of Advanced Returns Management (ARM) in SAP S/4HANA, with separate discussions for customer returns, supplier returns and stock transfer returns. A thorough description of each aspect of the configuration is provided, with particular attention paid to both the technical setup and the underlying business logic.

The final section of the thesis comprises an analysis and evaluation of the implemented solution. The thesis goes on to discuss the strengths and limitations of the ARM functionality within the SAP environment, and to reflect on its applicability in real business scenarios. The work concludes with a summary of the key findings and suggestions for further research or potential system enhancements.

2. ADVANCED RETURN MANAGEMENT

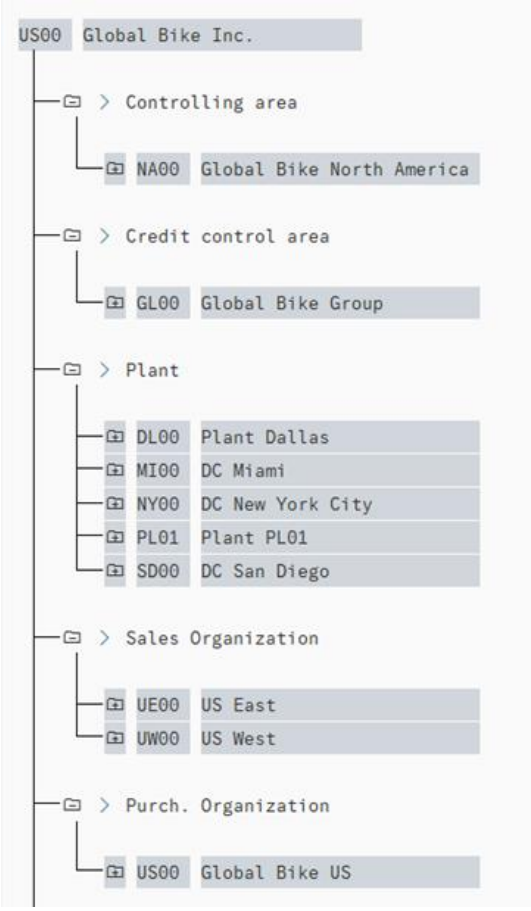
2.1 FOUNDATIONAL DATA IN SAP ENVIRONMENT

2.1.1 Organisational structure

In accordance with the objectives delineated in this dissertation, the following pre-existing organisational structure in SAP was utilised. In the context of the US00 company code, the following organisational elements were selected:

- **DL00** (Plant)
- **MI00** (Plant)
- **UE00** (Sales Organisation)
- **NA00** (Controlling Area)
- **US00** (Purchasing Organization)

Figure 1. Screenshot of organizational structure in SAP (tranzaction EC01)



Source: Own elaboration

Each of these elements plays a crucial role in defining the business structure within SAP. The company code represents the legal entity for financial transactions, while plants (such as DL00 and MI00) define locations where materials are produced, stored, or distributed. Conversely, the sales organisation (UE00) is responsible for the management of sales activities, customer relationships, and order processing. The function of the controlling area (NA00) is to serve as a central unit for the management of accounting and the tracking of costs. The purchasing organisation (US00) is responsible for the management of procurement activities, including the selection of vendors and the creation of purchase orders. Organisational elements collectively structure business processes in SAP, thereby linking financial, material, and sales data. This linkage is conducive to improved decision-making, reporting, and operational efficiency.

2.1.2 Business partner

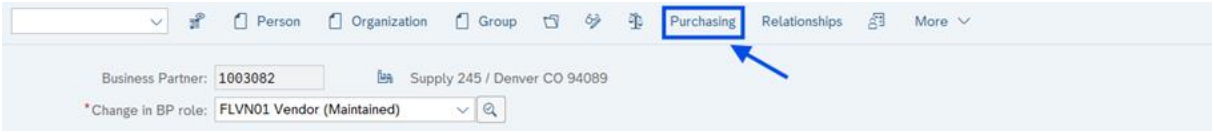
The roles of Business Process Owners are defined in accordance with business processes within SAP. Each Business Partner (BP) is associated with specific roles, and the relevant attributes are assigned to these roles. It is imperative to acknowledge that Business Partners in SAP are invariably established in conjunction with BP roles.

In the context of return processes, Business Partners play a pivotal role, as they help define the relationship between the company and its suppliers or customers. For return processes to function correctly, it is essential to configure two distinct roles:

- Vendor Role (FLVN0)
- Customer Role (FLCU01)

An important configuration setting for returns to suppliers is the Return Supplier checkbox. This setting is critical for properly mapping the Customer to the Purchasing Organisation. The checkbox is located in the Purchasing section and is associated with the FLVN01 role. Prior to the activation of the Return Supplier checkbox, it is necessary to assign the designated Sales Area to the Purchasing Organisation. This process ensures the accurate mapping of the customer in the system.

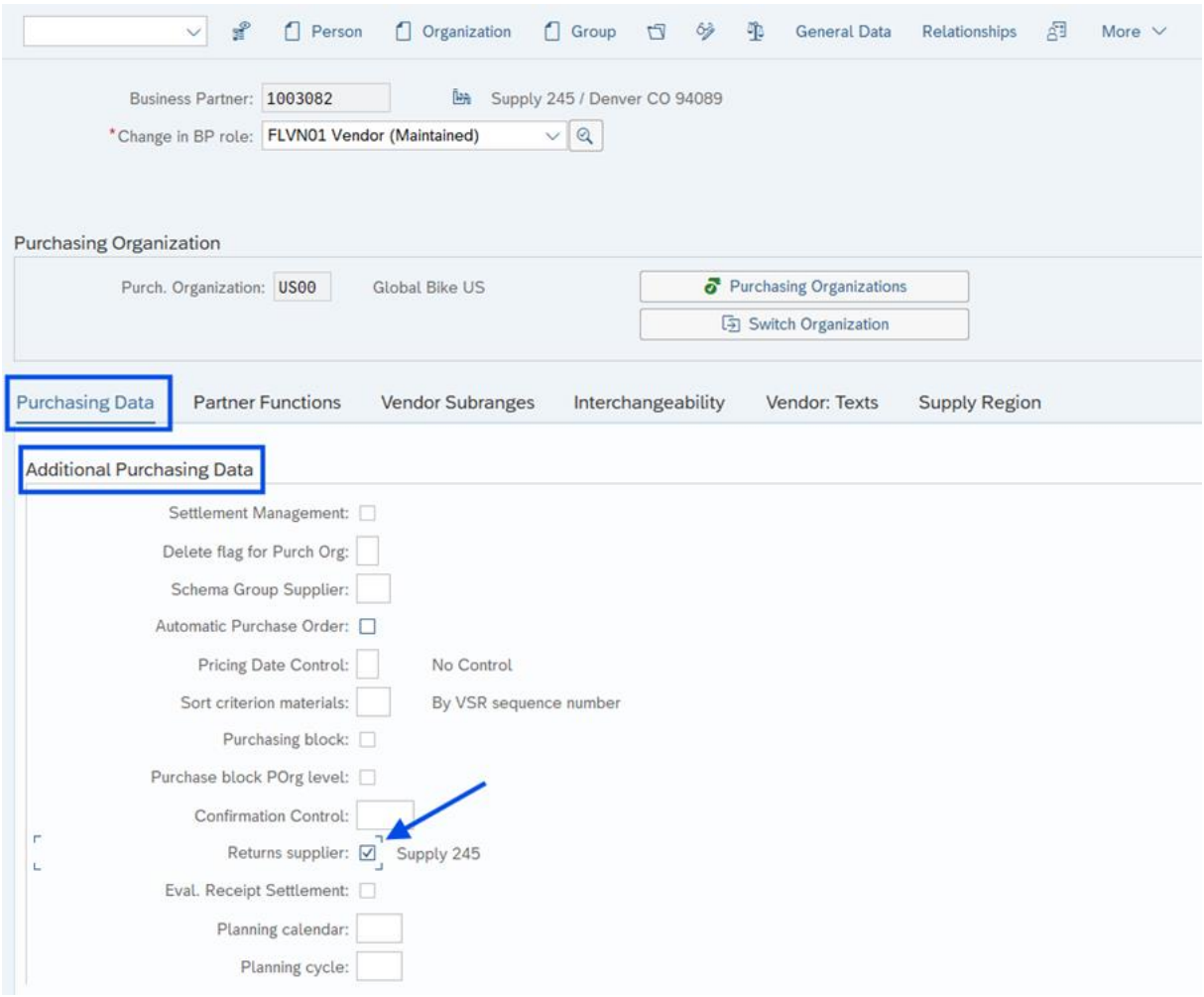
Fig 2. Screenshot of sections in the Vendor BP role



Source: Own elaboration

Within the Purchasing Data section, under Additional Purchasing Data, in which the checkbox that must be selected to enable return processes with the supplier can be found.

Fig 3. Screenshot of Purchasing Data section



Source: Own elaboration

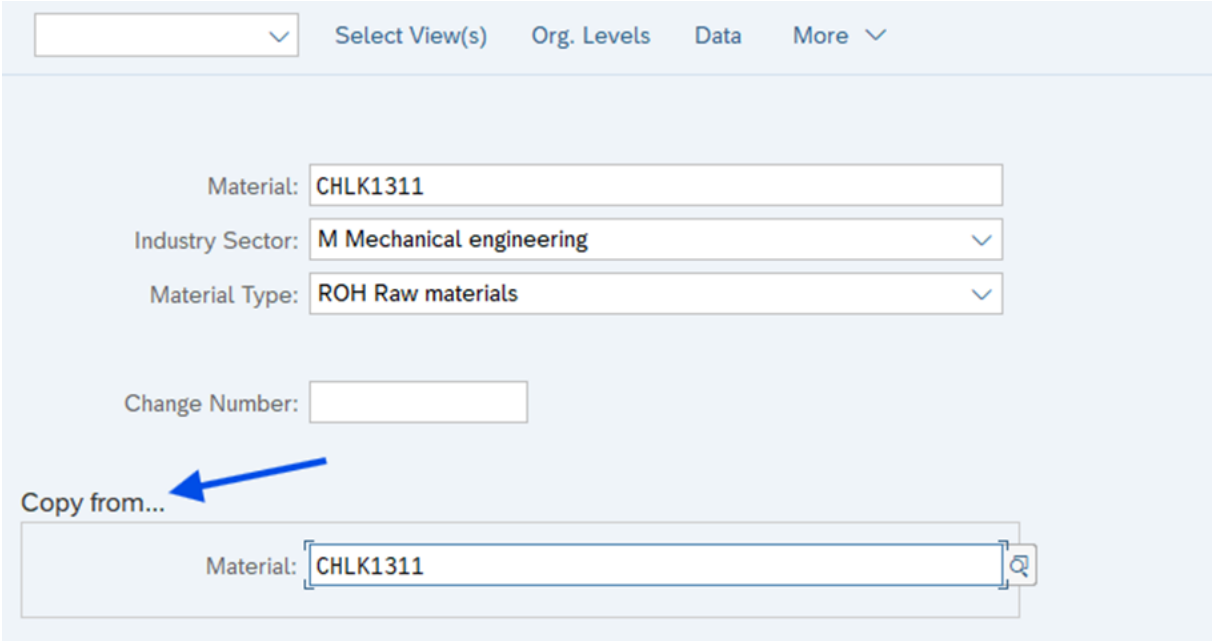
2.1.3 Material

In the SAP system, a material is defined as a specific category of master data, the purpose of which is to store essential information regarding physical items or services that are utilised within the enterprise. This data delineates the characteristics of the material and determines how it is handled in various business processes, such as procurement, inventory management, and production. Depending on the material's intended use, it is necessary to maintain specific views, such as Basic Data, Sales, Purchasing, Accounting, and Plant-specific views. These relate to particular functional areas in the system. In order to create a material, it is necessary to navigate through the SAP Easy Access Menu using the following path:

Logistics -> Materials Management -> Material Master -> Material -> Create (General) -> Immediately

In the case study, material master data was maintained for two plants: MI00 and DL00. To streamline the process, the material data initially created for the MI00 plant was copied and extended to the DL00 plant. This can be done during material creation using transaction MM01, by selecting the relevant reference plant (MI00) and specifying the new plant (DL00) in the organizational levels screen.

Fig 4. Screenshot of material creation in the transaction MM01



Source: Own elaboration

2.2 STANDARD CONFIGURATION OF ARM

This chapter provides a detailed discussion of the Standard Configuration for Advanced Return Management (ARM), focusing on the configuration steps in SAP, specifically within the SPRO path:

SPRO → IMG → Logistics General → Advanced Return Management → General Settings

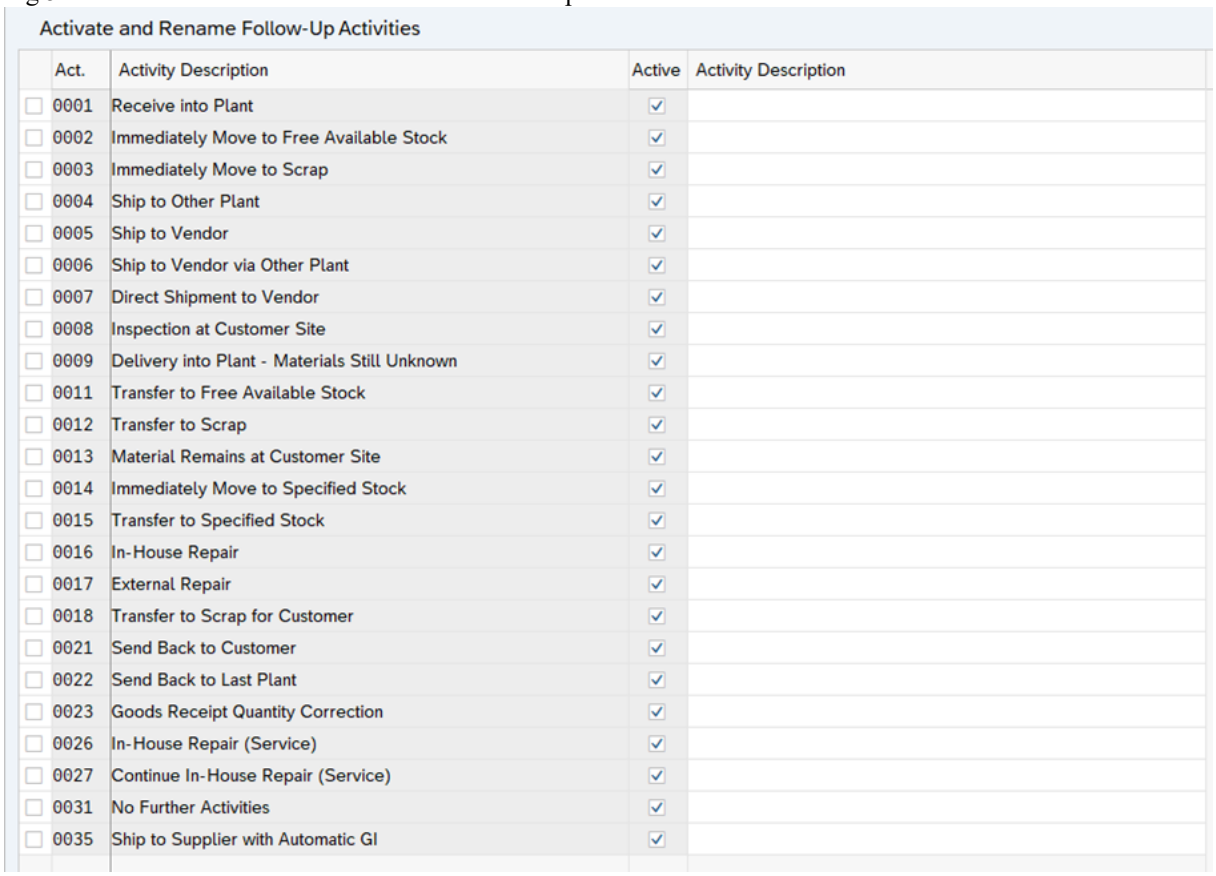
1. Activate and Rename Follow-Up Activities

One of the key configuration steps in Advanced Return Management is setting up Follow-Up Activities. This configuration can be accessed via the following path:

SPRO → IMG → Logistics General → Advanced Return Management → General Settings → Activate and Rename Follow-Up Activities

In this section, the Follow-Up Code can be activated or deactivated, depending on business requirements. Furthermore, it facilitates the renaming of the Follow-Up Code to align with the business's specific terminology. The term "Follow-Up Activity" is employed to denote a process that ensues subsequent to the inspection of returned materials or the creation of the initial returns document. This activity is pivotal in ensuring that the appropriate actions are taken in accordance with the outcome of the return process. This configuration is essential for customizing the return process to align with business processes, ensuring that return scenarios are handled effectively and in compliance with the company’s policies.

Fig 5. Screenshot of Activate and Rename Follow-Up Activities



Activate and Rename Follow-Up Activities

Act.	Activity Description	Active	Activity Description
0001	Receive into Plant	☑	
0002	Immediately Move to Free Available Stock	☑	
0003	Immediately Move to Scrap	☑	
0004	Ship to Other Plant	☑	
0005	Ship to Vendor	☑	
0006	Ship to Vendor via Other Plant	☑	
0007	Direct Shipment to Vendor	☑	
0008	Inspection at Customer Site	☑	
0009	Delivery into Plant - Materials Still Unknown	☑	
0011	Transfer to Free Available Stock	☑	
0012	Transfer to Scrap	☑	
0013	Material Remains at Customer Site	☑	
0014	Immediately Move to Specified Stock	☑	
0015	Transfer to Specified Stock	☑	
0016	In-House Repair	☑	
0017	External Repair	☑	
0018	Transfer to Scrap for Customer	☑	
0021	Send Back to Customer	☑	
0022	Send Back to Last Plant	☑	
0023	Goods Receipt Quantity Correction	☑	
0026	In-House Repair (Service)	☑	
0027	Continue In-House Repair (Service)	☑	
0031	No Further Activities	☑	
0035	Ship to Supplier with Automatic GI	☑	

Source: Own elaboration

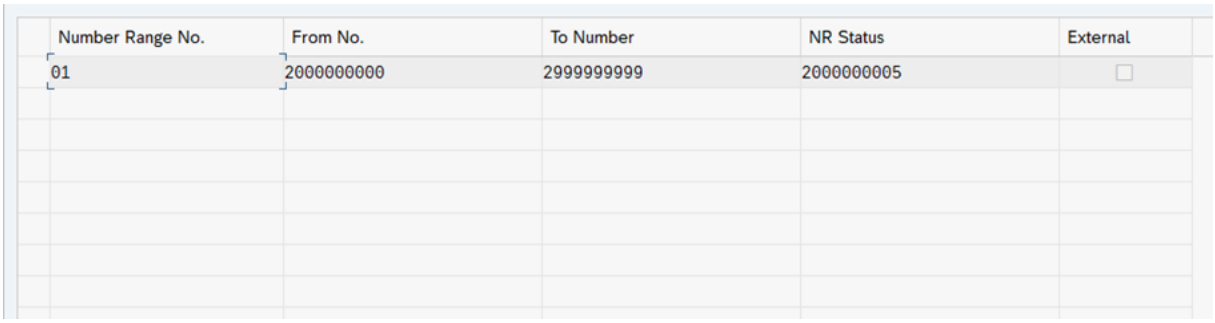
2. Define Number Ranges for Advanced Returns Process IDs

This configuration step can be accessed via the following SPRO path:

SPRO -> IMG -> Logistic General-> Advance Return Management-> General Settings-> Define Number Ranges for Advanced Returns Process IDs

When an Advanced Return Order is created, each order is assigned a unique MSR_ID (Process ID No.), which is stored in the VBAK-MSR_ID field. The number range for the MSR_ID is assigned to each order. It is important to note that the MSR_ID field plays a crucial role in each transaction within the Advanced Return Management process.

Fig 6. Screenshot of Number Ranges for Advanced Returns Process IDs

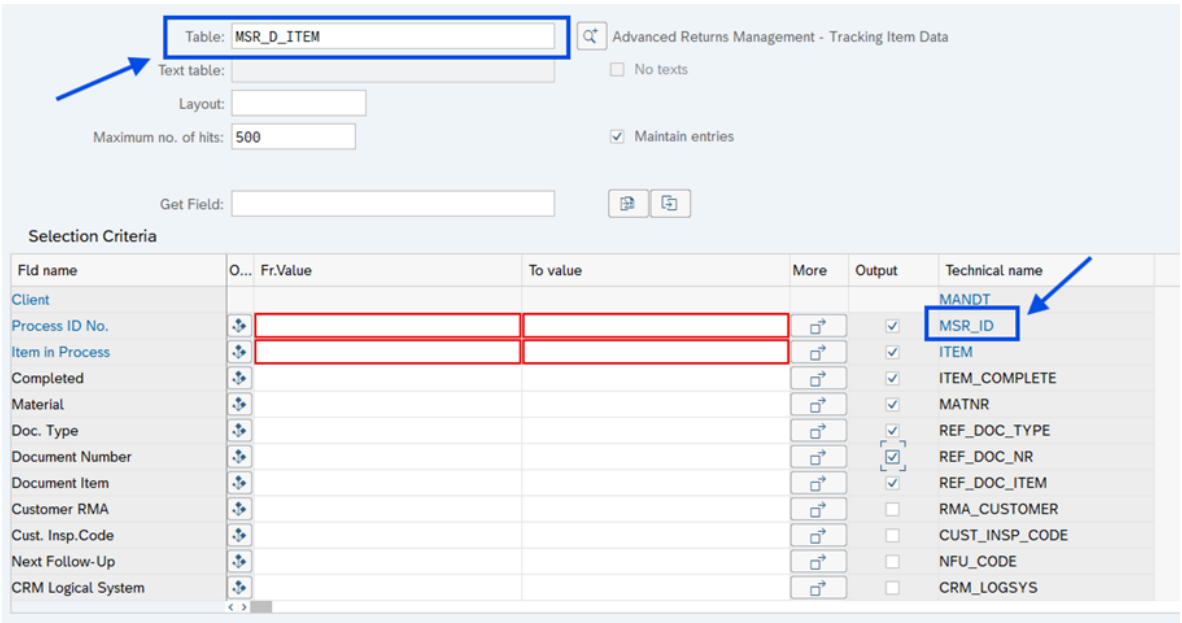


Number Range No.	From No.	To Number	NR Status	External
01	2000000000	2999999999	2000000005	

Source: Own elaboration

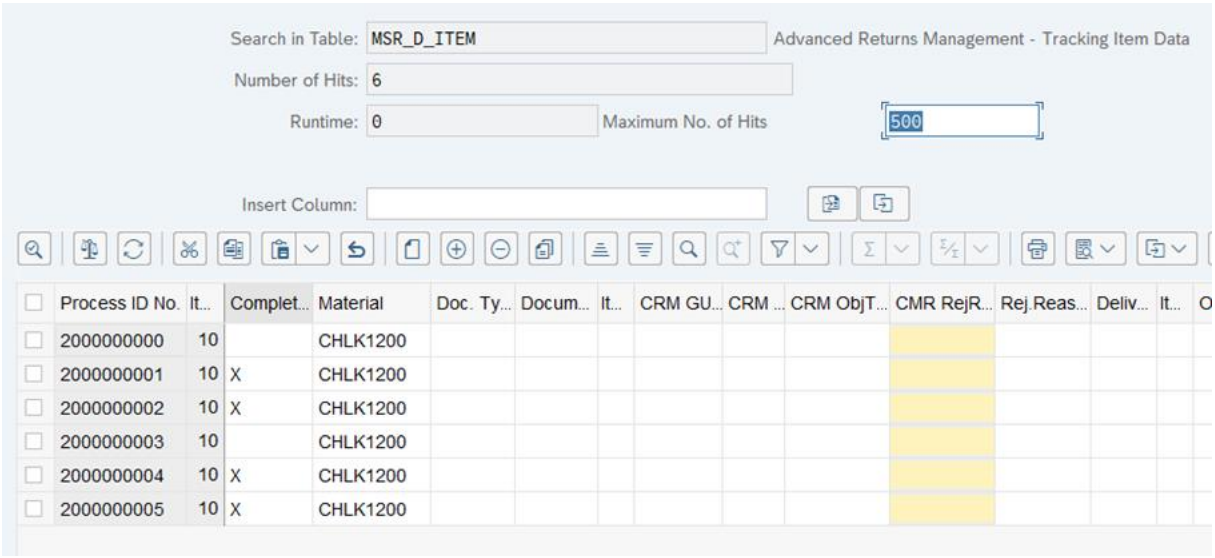
The set of MSR_ID fields can be accessed via the SE16N transaction, using the table name MSR_D_ITEM (Fig 8). This table is essential for tracking and processing returned materials throughout the returns lifecycle.The system in question has the capacity to integrate with the SAP Logistics Execution (LE), Materials Management (MM), and Sales and Distribution (SD) modules. This integration enables detailed reporting, monitoring, and execution of complex returns scenarios. The system is designed to store item-level data for returns processes, including customer returns, supplier returns, and logistical follow-up activities. Each row in the table corresponds to a particular item within a return purchase or sales order and includes detailed tracking of the return's lifecycle—from receipt to inspection, decision, and follow-up actions.

Fig 7. Screeshot of SE16N transaction



Source: Own elaboration

Fig 8. Screenshhot of MSR_D_ITEM table in SE16N transaction



Process ID No.	It...	Complet...	Material	Doc. Ty...	Docum...	It...	CRM GU...	CRM ...	CRM ObjT...	CMR RejR...	Rej.Reas...	Deliv...	It...	O
2000000000	10		CHLK1200											
2000000001	10	X	CHLK1200											
2000000002	10	X	CHLK1200											
2000000003	10		CHLK1200											
2000000004	10	X	CHLK1200											
2000000005	10	X	CHLK1200											

Source: Own elaboration

3. Specify Follow-Up Document Types for Customer Returns

SPRO -> IMG -> Logistic General-> Advance Return Management-> General Settings-> Automatic Creation of Follow-Up Documents-> Mapping Document Types and Return Reasons-> Specify Follow-Up Document Types for Customer Returns

In this IMG activity, the participant defines the purchase order types that the system uses to automatically generate follow-up documents within Advanced Return Management (ARM). These documents may include returns purchase orders or stock transport orders, and they are mapped to the relevant returns sales document types. Additionally, you can specify the types of sales documents that will be used for free-of-charge subsequent deliveries and credit memo requests, which are crucial for handling customer refunds.

Fig 9. Screenshot of Follow-Up Document Types for Customer Returns

Follow-Up Document Types for Customer Returns

Ret. Order	DcType RTS	Store Ret.	ccStoreRet	DcType SDF	DcType CMR
CBAR	NB2				GA2
RE2	NB2	UB2	NB2C		GA2

Source: Own elaboration

Standard settings:

In the standard, the following order types for subsequent documents are assigned to returns order type RE2 and CBAR:

- Purchase order type *NB2* for a returns to supplier
- Purchase order type *UB2* for an intracompany store return
- Purchase order type *NB2C* for a cross-company-code store return
- Sales document type *GA2* for a credit memo request

These predefined settings ensure the seamless creation of follow-up documents during the returns process, supporting the effective management of customer returns.

4. Specify Follow-Up Document Types for Store Returns
SPRO -> IMG -> Logistic General-> Advance Return Management-> General Settings-> Automatic Creation of Follow-Up Documents-> Mapping Document Types and Return Reasons-> Specify Follow-Up Document Types for Store Returns
The objective of this IMG activity is to define the purchase order types that the system should use to automatically generate logistical follow-up documents during store returns as part of the Advanced Returns Management (ARM) process. The creation of these follow-up documents is contingent upon the return activity that is selected during the material inspection phase in the warehouse. In accordance with the findings of the inspection and the selected activity, the system has the capacity to automatically generate:

- A returns purchase order for sending goods back to the supplier
- A stock transport order for moving goods to another plant within the same or a different company code
- A scrapping document if the goods are to be disposed of
- A putaway document if the material is approved and returned to unrestricted stock

Fig 10. Screenshot of Follow-Up Document Types for Store Returns

Follow-Up Document Types for Store Returns

Store Ret.	DcType RTS	Store Ret.	ccStoreRet	STO	cc STO
NB2C	NB2	UB2	NB2C	UB	NB
UB2	NB2	UB2	NB2C	UB	NB

Source: Own elaboration

Each of these document types must be preconfigured and mapped according to specific return reasons and activities to ensure accurate and efficient follow-up handling in the warehouse. This configuration is pivotal for facilitating the system's capacity to automate logistics responses, with these responses being informed by the physical condition and business decisions that are made during the inspection stage of the return process.

2.3 SUPPLIER RETURN

The generation of a returns purchase order is initiated by a company when there is a necessity to return goods to an external vendor. The circumstances that necessitate this action may include defects, over-delivery, or the utilisation of incorrect materials. In such cases, the Advanced Returns Management (ARM) functionality of the SAP system offers enhanced capabilities for the streamlined and transparent management of the return process from start to finish.

The following steps are typically involved in the process:

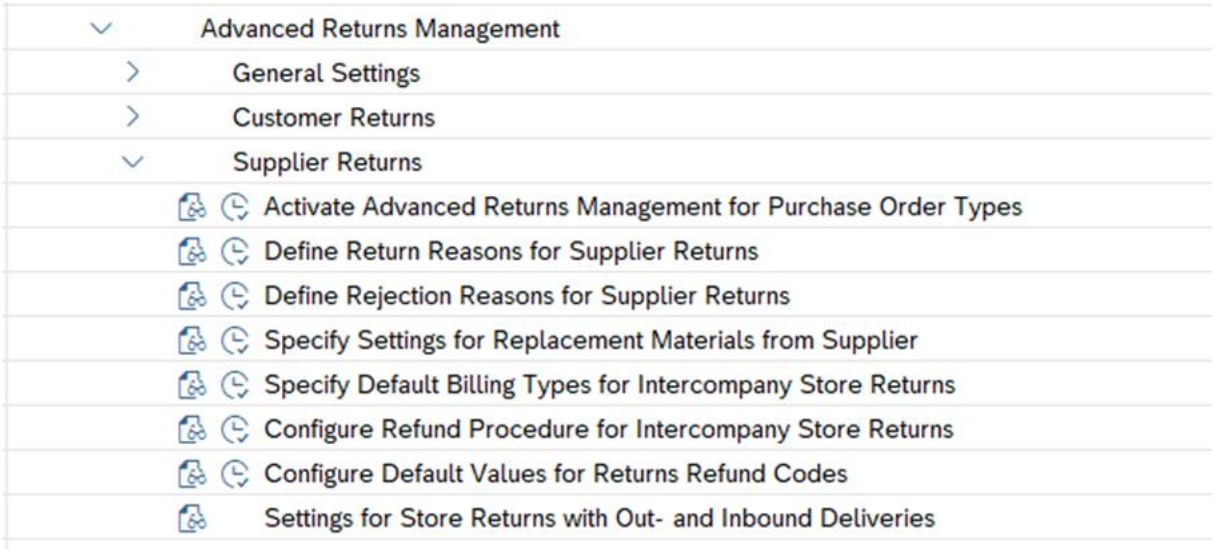
1. **Create a Returns Purchase Order**
   The PO is created with reference to the original purchase order or independently and must use a returns document type for which ARM is enabled.
2. **Create Outbound Delivery**
   An outbound delivery is generated to initiate the shipment of the returned goods back to the vendor. This includes picking, packing, and goods issue.
3. **Post Goods Issue**
   The outbound delivery is posted, and the returned goods leave the company premises.
4. **Create Follow-Up Activity**
   Based on the outcome of the return (e.g., vendor sends replacement goods, issues a credit memo), a follow-up activity is defined in the system.
5. **Monitor and Close Return**
   The return process can be monitored using ARM-specific tools and reports, ensuring transparency and control over each step of the return.

Fig 11. Supplier Return Flow

Source: [8]

The following are the key configuration items needed to enable and customise the ARM feature for vendor returns.

Fig 12. Supplier Return SPRO Menu



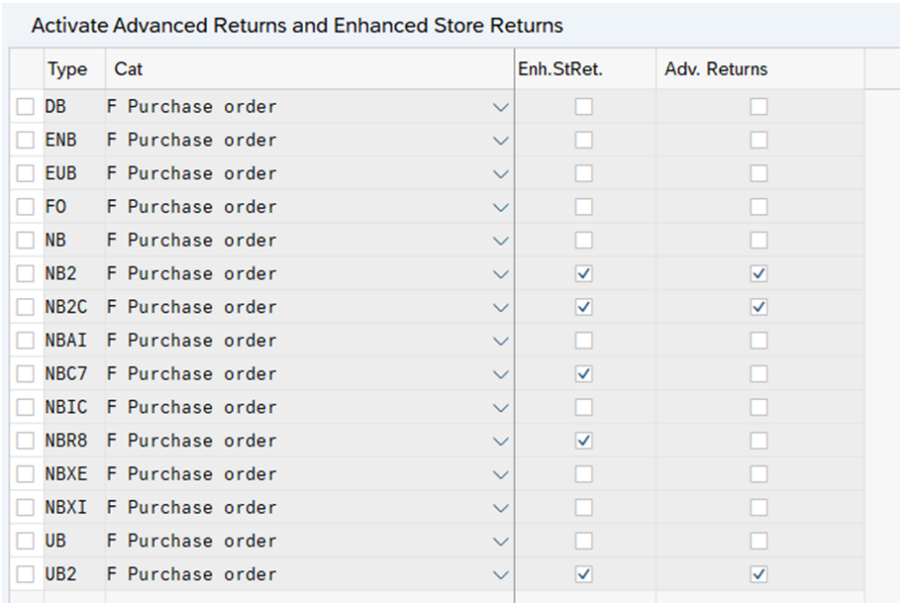
Source: Own elaboration

Activate Advanced Returns Management for Purchase Order Types

SPRO -> IMG -> Logistic General-> Advance Return Management-> Supplier Returns -> Activate Advanced Returns Management for Purchase Order Types

In this configuration, the Purchase Order type has been activated for ARM (NB2, UB2, NB2C).

Fig 13. Screenshot of Activate Advanced Returns and Enhanced Store Returns



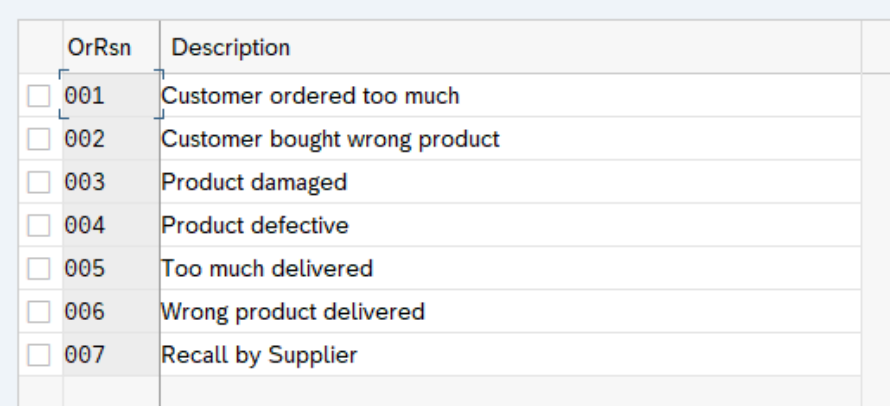
Type	Cat	Enh.StRet.	Adv. Returns
DB	F Purchase order	☐	☐
ENB	F Purchase order	☐	☐
EUB	F Purchase order	☐	☐
FO	F Purchase order	☐	☐
NB	F Purchase order	☐	☐
NB2	F Purchase order	☑	☑
NB2C	F Purchase order	☑	☑
NBAI	F Purchase order	☐	☐
NBC7	F Purchase order	☑	☐
NBIC	F Purchase order	☐	☐
NBR8	F Purchase order	☑	☐
NBXE	F Purchase order	☐	☐
NBXI	F Purchase order	☐	☐
UB	F Purchase order	☐	☐
UB2	F Purchase order	☑	☑

Source: Own elaboration

SPRO -> IMG -> Logistic General-> Advance Return Management-> Supplier Returns -> Define Return Reasons for Supplier Returns

In the context of returns, purchase orders (rPOs) necessitate a clear rationale for their generation. The rationale behind a customer's return can be specified automatically in a subsequent rPO or rSTO.

Fig 14. Screenshot of Return Reasons for Supplier Returns



OrRsn	Description
001	Customer ordered too much
002	Customer bought wrong product
003	Product damaged
004	Product defective
005	Too much delivered
006	Wrong product delivered
007	Recall by Supplier

Source: Own elaboration

SPRO -> IMG -> Logistic General-> Advance Return Management-> Supplier Returns -> Specify Settings for Replacement Materials from Supplier

In this customising activity, the user is required to specify the purchase order types that the system uses to automatically create logistical follow-up documents in Advanced Returns Management. This provides the reader with the necessary documentation for the receipt of replacement materials from a supplier and for the subsequent definition of logistical follow-up activities. It is imperative that these purchase order types are assigned to the initial returns purchase order type for the return to supplier.

Fig 15. Screenshot of Settings for Replacement Materials from Supplier

Specify Settings for Replacement Materials from Supplier

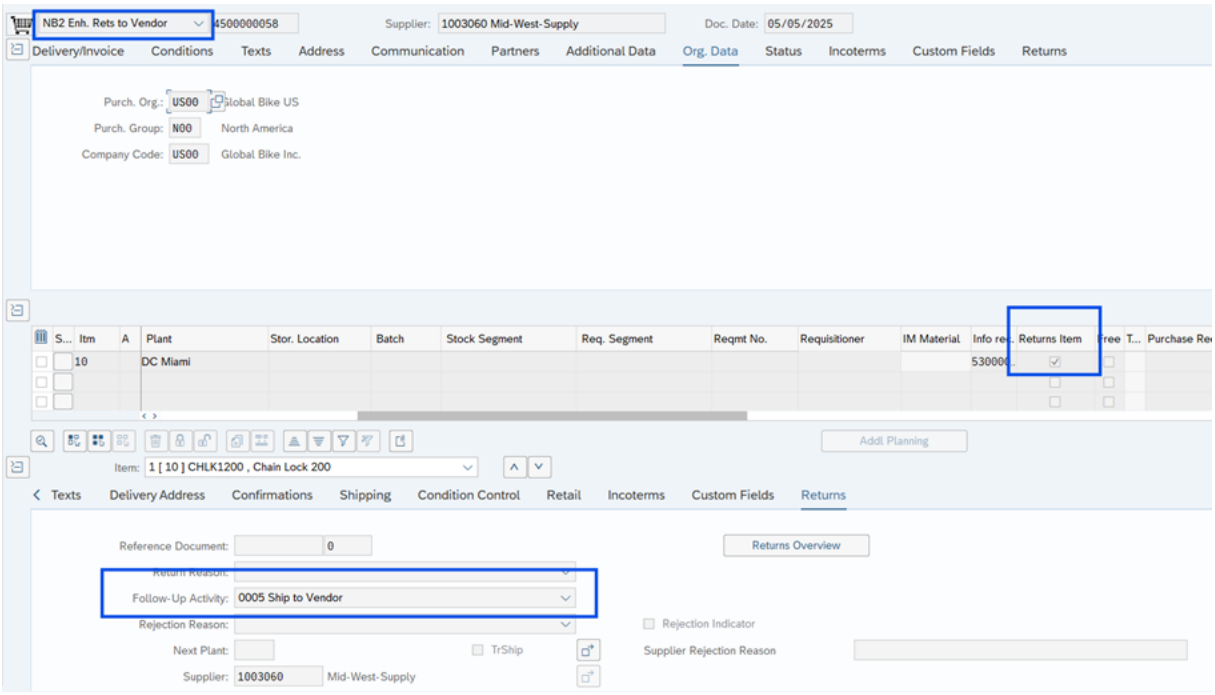
Ret POType	Doc. Type Descript.	ReplPOType	Doc. Type Descript.	DcType RTS	Doc. Type Descript.	Store Ret.	Doc. Type Descript.	CCStoreRet	Doc. Type Descript.
NB2	Enh. Rets to Vendor	NB	Standard PO	NB2	Enh. Rets to Vendor	UB2	Enh. Rets STO IC	NB2C	Enh. Rets STO CC

Source: Own elaboration

2.3.1 Returns Purchase Order

The purchase order is initiated in transaction ME21N (Logistics → Materials Management → Purchasing → Purchase Order → Create → Vendor/Supplying Plant Known). It is crucial to select the correct document type: NB2. After entering the appropriate organizational structure, supplier, purchase order quantity, and net price, it is necessary to ensure that the Return Item checkbox is selected in the Item Overview section. Within the Returns tab of the Item Details section, it is imperative to verify that the Follow-Up Activity is correctly set to Ship to Vendor.

Fig 16. Screenshot of a purchase order created in transaction ME21N

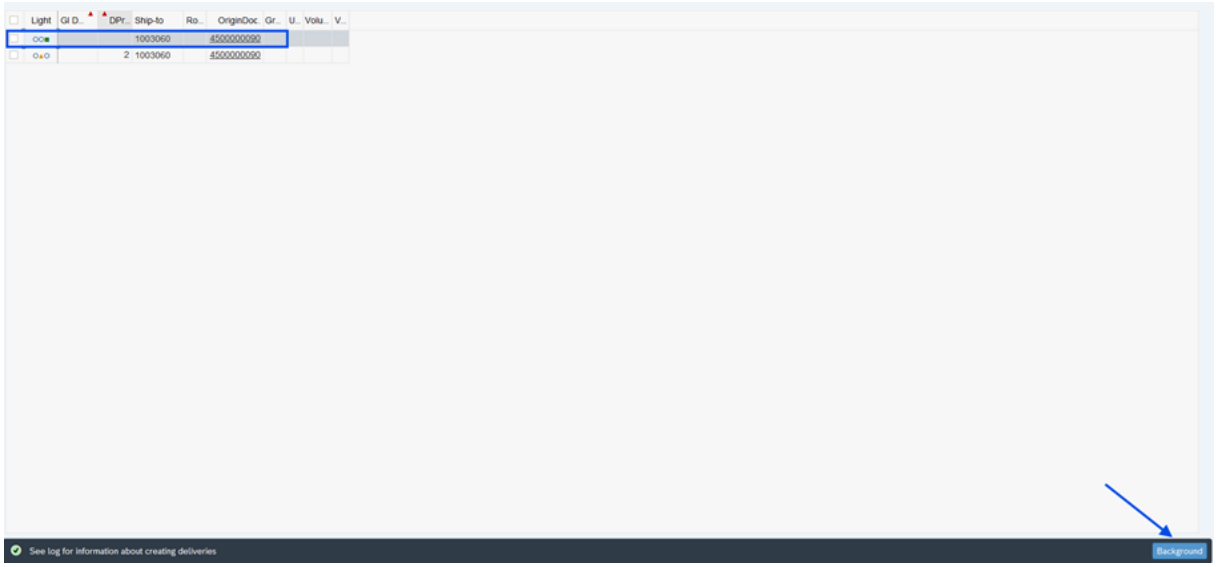


Source: Own elaboration

2.3.2 Return Outbound Delivery

The process begins by accessing transaction VL10B (Logistics → Sales and Distribution → Sales → Shipping and Transportation → Outbound Delivery → Create → Collective Processing of Documents Due for Delivery → Purchase Orders). Once the relevant purchase order is selected, it is necessary to tick the checkbox next to the appropriate line (indicated by a yellow light) and execute the process in the background. If successful, the outbound delivery is generated, and the status indicator changes to green, confirming its creation.

Fig 17. Screenshot of checkboxs in transaction VL10B

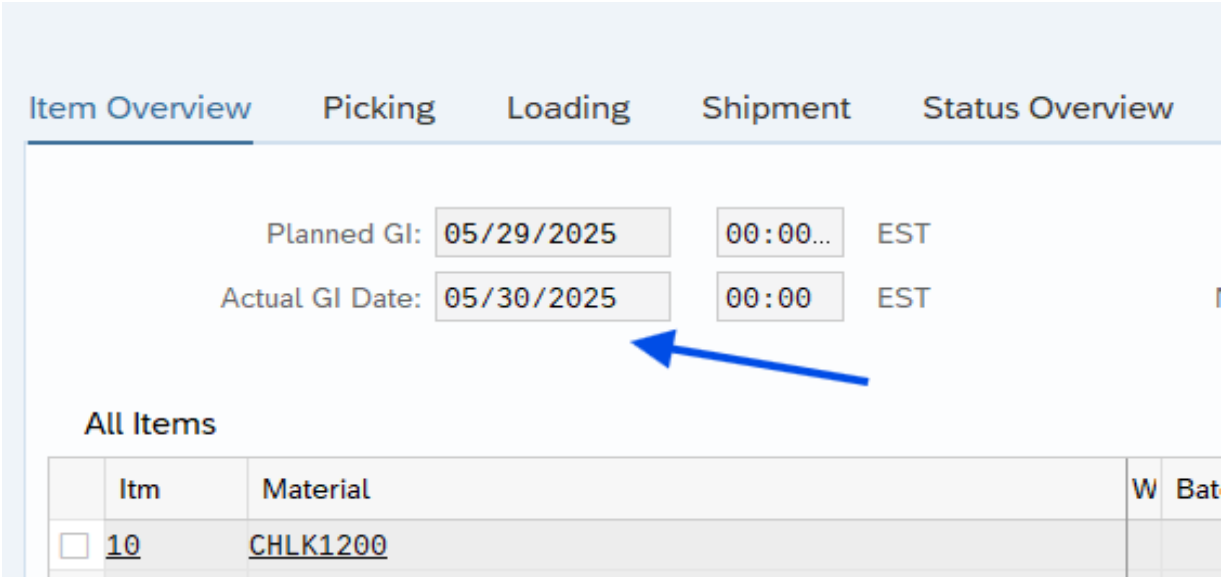


Source: Own elaboration

2.3.3 Return Goods Issue

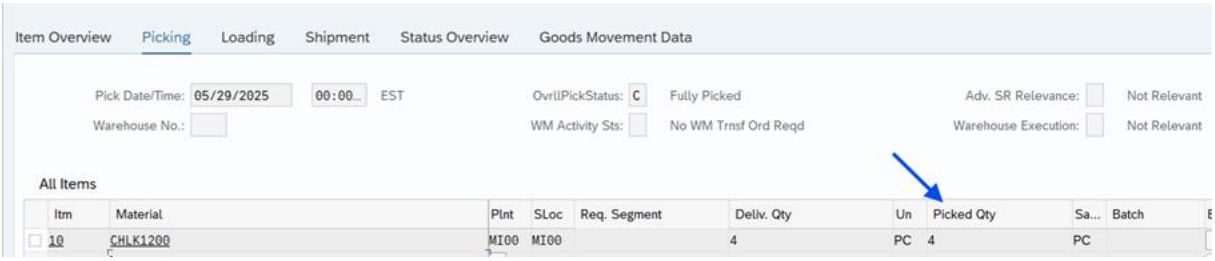
After entering the outbound delivery number in transaction VL02N, it is essential to provide the correct Actual Goods Issue (GI) Date in the Item Overview tab (see Fig. 18) and to ensure that the correct picked quantity is entered in the Picking tab (see Fig. 19). Finally, the process is completed by selecting the Post Goods Issue button.

Fig 18. Screenshot of Item Overview tab in tranzaction VL02N



Source: Own elaboration

Fig 19. Screenshot of Picking tab in tranzaction VL02N

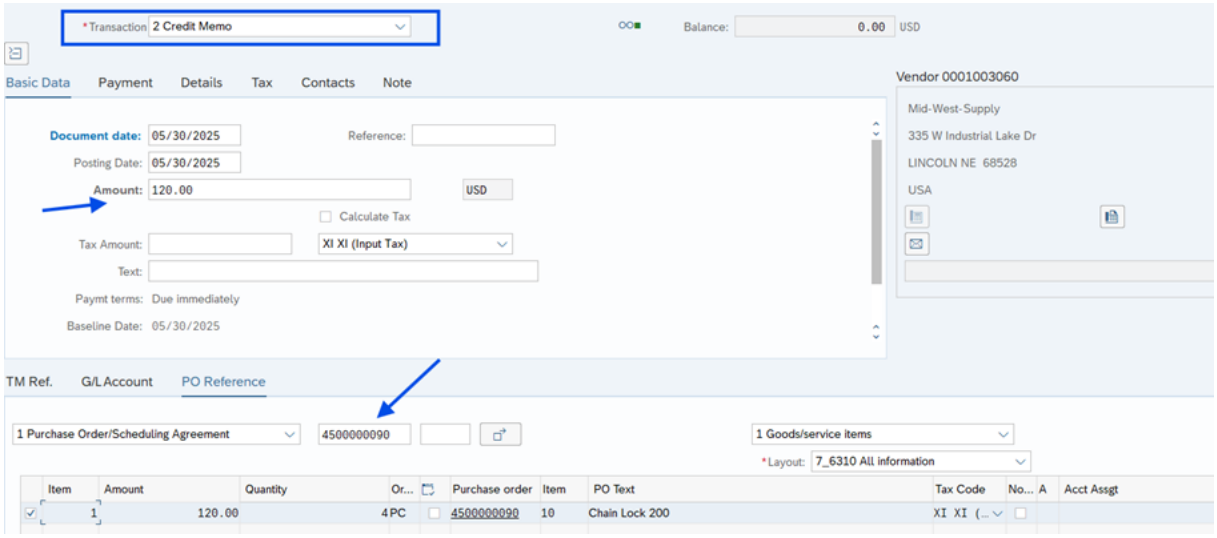


Source: Own elaboration

2.3.4 Credit Memo

Within the SAP system, credit memos are utilised for the purpose of correcting vendor invoices. Following the posting of the invoice and credit memo differences in SAP, any outstanding items remaining in the invoice, credit memo and payment can be cleared. To initiate the process, transaction MIRO must be entered (Logistics → Materials Management → Purchasing → Purchase Order → Follow-On Functions → Logistics Invoice Verification). It is necessary to select the Transaction type: Credit Memo, enter the appropriate amount and currency, and—most importantly—ensure that the correct Purchase Order number is provided.

Fig 19. Screenshot of MIRO tranzaction



Source: Own elaboration

2.4 CUSTOMER RETURN

Customer returns refers to the process by which goods are returned to a company location by a customer. Within the framework of SAP's Advanced Returns Management (ARM), the management of customer returns is orchestrated through a comprehensive and automated system that caters to a multitude of return scenarios. The ARM system facilitates the processing of returns initiated by customers. The system enables companies to track the entire return process, from the initial return request to the final resolution.

The following steps are typically involved in the process:

1. **Create Sales Order**
   The system creates a return order based on the customer's request, verifying customer and material information.
2. **Create Outbound Delivery**
   An outbound delivery is generated to initiate the shipment of the returned goods.
3. **Material Inspection**
   The returned items undergo inspection to assess their condition, quality, and usability. Inspection results are recorded in SAP.
4. **Post Goods Issue**
   The outbound delivery is posted, and the returned goods leave the company premises.

5. **Monitor and Close Return**

The return process can be monitored using ARM-specific tools and reports, ensuring transparency and control over each step of the return.

Fig 20. Screenshot of Customer Return flow

Source: [8]

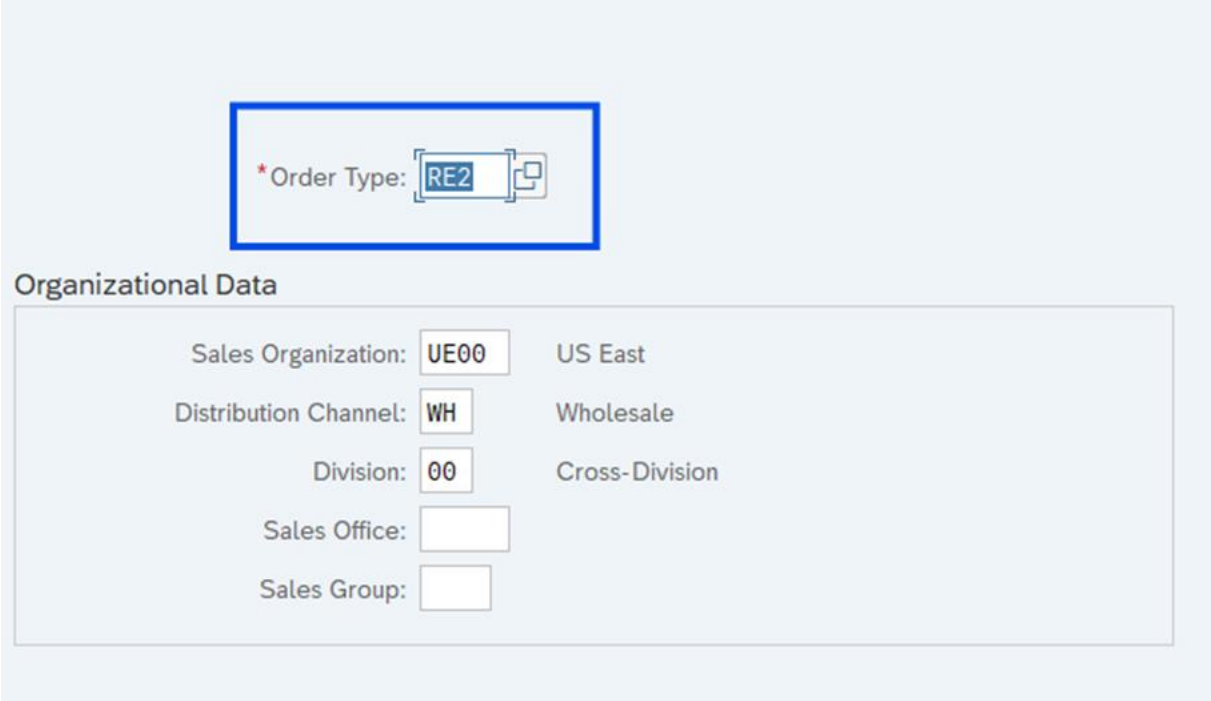
2.4.1 Sales Order

In transaction VA01 (*Logistics → Sales and Distribution → Sales → Order → Create*), it is essential to select the correct order type – RE2 (Advanced Returns). After entering the Sold-to Party and Ship-to Party, several additional data fields must be completed, including: Material Number, Order Quantity, Return Reason, Follow-Up Activity, Refund Type (which determines the type of refund the customer will receive for the returned material), Refund Control (which specifies how and when the refund is processed — either as a credit memo or a replacement, depending on the selected refund type), and Refund Code (which can be used in pricing to calculate the refund amount) (see Fig. 22).

In the Reason for Rejection tab, it is also necessary to specify the Order Reason.

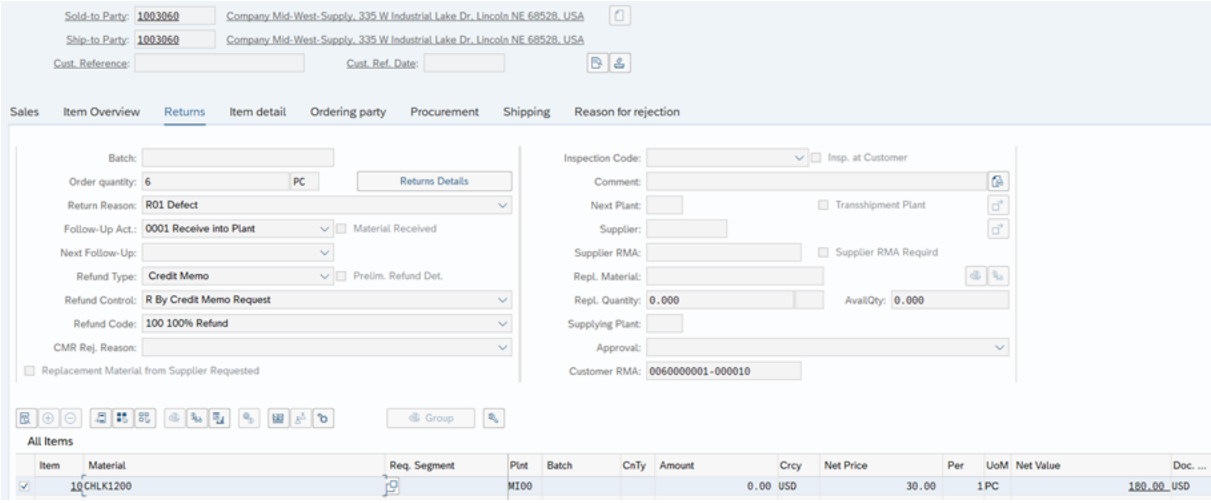
It is important to note that the Net Price (found in the *All Items* section) is a mandatory field. Without it, the sales order cannot be created successfully and an error will occur.

Fig 21. Screenshot of tranzaction VA01



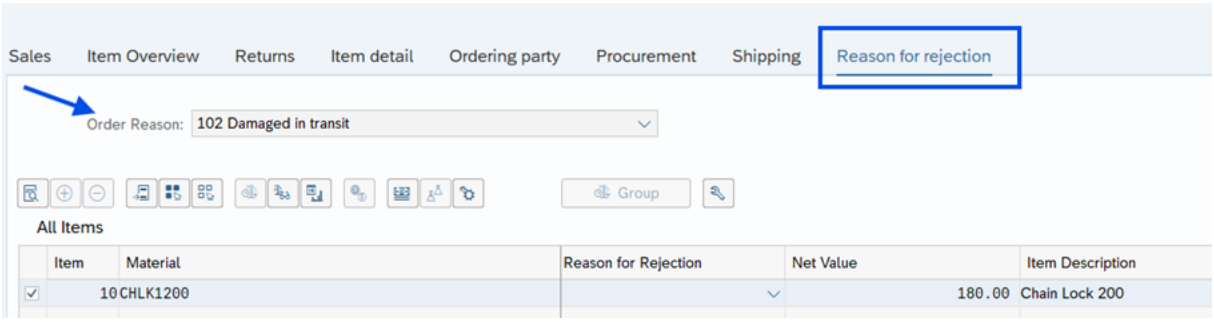
Source: Own elaboration

Fig 22. Screenshot of Returns tab in tranzaction VA01



Source: Own elaboration

Fig.23 Screenshot of Reason to rejection tab in tranzaction VA01

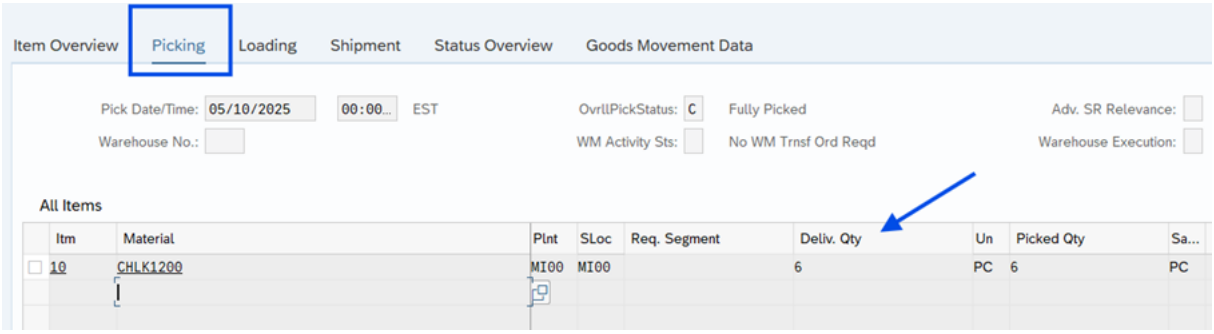


Source: Own elaboration

2.4.2 Outbound Delivery and Goods Receipt

In transaction VL01N (*Logistics → Sales and Distribution → Sales → Order → Subsequent Functions → Outbound Delivery*), it is only necessary to provide the Delivery Quantity in the Picking tab. The goods receipt is posted by clicking the Goods Issue button.

Fig.24 Screenshot of Picking tab in tranzaction VL01N



Source: Own elaboration

2.4.3 Material Inspection

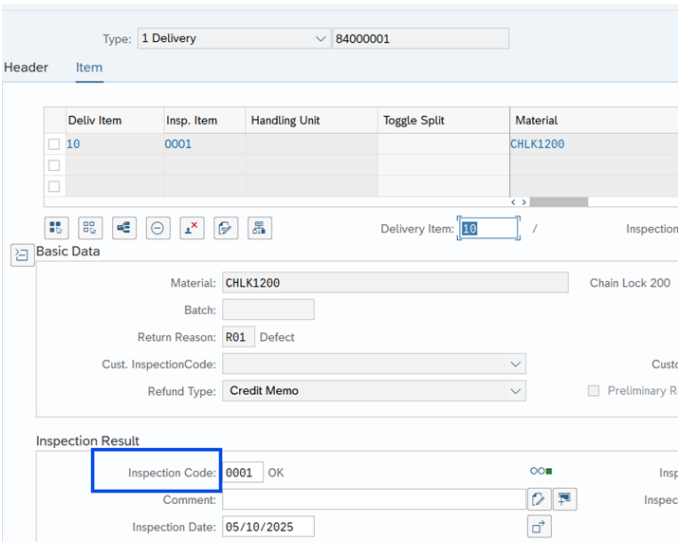
Inspection Using Transaction MSR_INSPWH

(*Logistics → Materials Management → Purchasing → Environment → Advanced Returns Management → Enter Material Inspections in Warehouse*)

To begin the inspection, the return delivery is searched in order to bring up the inspection list. In the Inspection Result tab, the inspector marks the item as "OK" and can optionally add a comment if desired. A logistics follow-up action is also selected during the inspection.

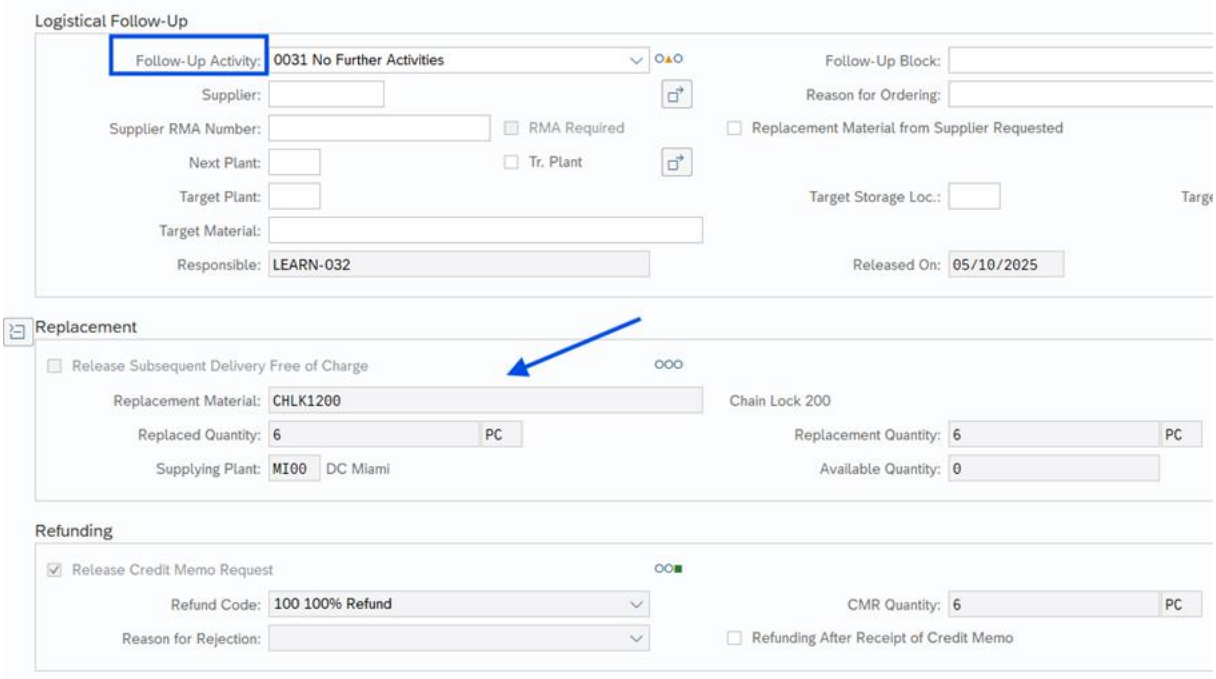
At the end of the process, it is necessary to enter the Replacement Material Number (see Fig. 26).

Fig. 25 First screenshot of the Material Inspection transaction



Source: Own elaboration

Fig. 26 Second screenshot of the Material Inspection transaction



Source: Own elaboration

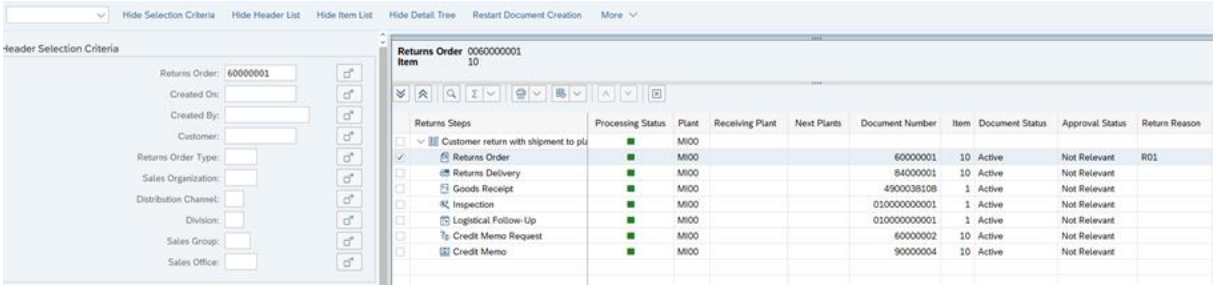
2.4.4 Return Outbound Delivery and Credit Memo

The next step is to create return deliveries to suppliers and credit memos. These processes are the same as those described in Subchapters 2.3.2 and 2.3.4.

2.4.5 Final Review of Advanced Returns Management

The overview screen (Fig. 27) in transaction MSR_TRC_C (*Logistics → Sales and Distribution → Sales → Environment → Advanced Returns Management → Display Customer Returns Overview*) provides a comprehensive view of the returns process and the associated document numbers. Each line item has defined process steps based on previous return decisions. The progress of each step and upcoming events are clearly visible.

Fig. 27 Screenshot of tranzaction MSR_TRC_C



Source: Own elaboration

2.5 STOCK TRANSFER RETURN

Store returns or transfers to other facilities are essential components of reverse logistics, facilitating the movement of inventory from a retail outlet to other locations such as distribution centers or manufacturing sites.

In general process of stock transfer return consists of:

1. **Return Stock Transport Order**
   A return stock transfer order can be generated manually, either independently or with reference to an existing stock transfer order. It can also be automatically created as part of follow-up processes.
2. **Return Outbound Delivery**
   An outbound delivery is generated for a return stock transfer order to facilitate the picking, packing, and shipping of the products at the supplying plant.
3. **Goods Issue**
   A goods issue is created to process the picking of products.
4. **Automatic Inbound Delivery**
   Using SAP's standard output (SPED), an inbound delivery is automatically generated at the receiving plant to process the products shipped from the supplying plant.
5. **Goods Receipt**
   A goods receipt is created to process the stock allocation.
6. **Material Inspection**
   A material inspection determines whether the stock should be moved to usable inventory or designated as scrap or rework. In this step the Follow-Up Activity is selected.

Fig. 28 Return Stock Transfer flow.

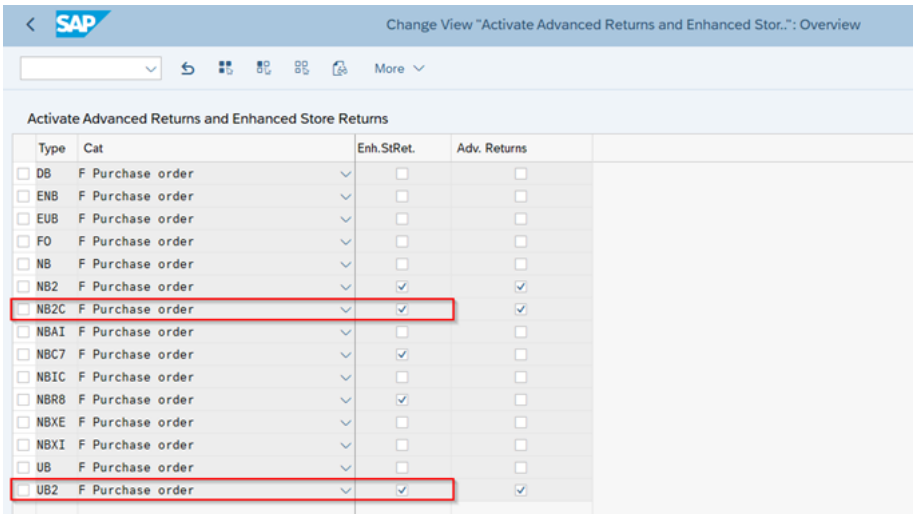
Source: [8]

The following are the key configuration items needed to enable and customize the ARM for return stock transfer orders.

1. Activate Advanced Returns Management for Purchase Order Types.
   Activation of ARM for Return Stock Transfer is done following the path:

SPRO → IMG → Materials Management → Purchasing → Purchase Order → Returns Order → Advances Returns Management → Activate Advanced Returns Management for Purchase Order Types.

Fig. 29 Activate Advanced Returns Management for Purchase Order Types.

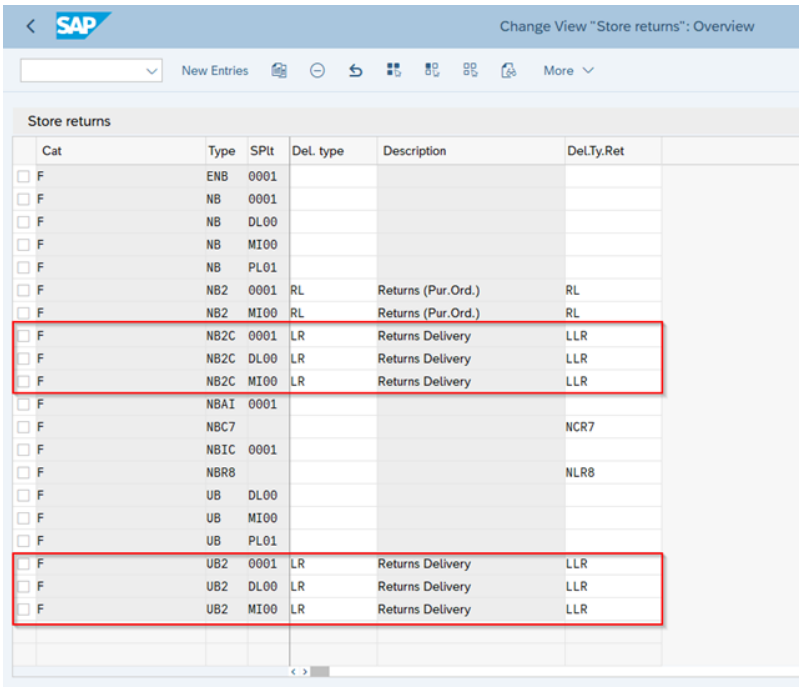


Source: Own elaboration

2. Configure the usage of delivery types for store returns.
   Configuration is available from:

SPRO → IMG → Materials Management → Purchasing → Purchase Order → Returns Order → Store Return / Return Plant to Plant.

Fig 30. Store Return / Return Plant to Plant.



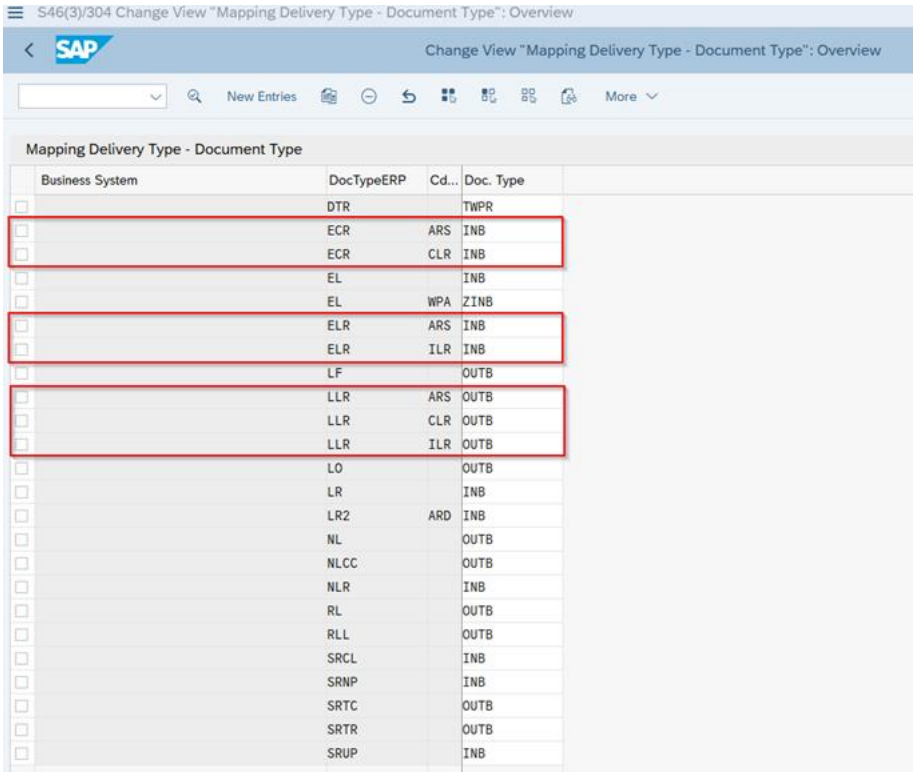
Cat	Type	SPlt	Del. type	Description	Del.Ty.Ret
F	ENB	0001			
F	NB	0001			
F	NB	DL00			
F	NB	MI00			
F	NB	PL01			
F	NB2	0001	RL	Returns (Pur.Ord.)	RL
F	NB2	MI00	RL	Returns (Pur.Ord.)	RL
F	NB2C	0001	LR	Returns Delivery	LLR
F	NB2C	DL00	LR	Returns Delivery	LLR
F	NB2C	MI00	LR	Returns Delivery	LLR
F	NBAI	0001			
F	NBC7				NCR7
F	NBIC	0001			
F	NBR8				NLR8
F	UB	DL00			
F	UB	MI00			
F	UB	PL01			
F	UB2	0001	LR	Returns Delivery	LLR
F	UB2	DL00	LR	Returns Delivery	LLR
F	UB2	MI00	LR	Returns Delivery	LLR

Source: Own elaboration

3. Map Document Types from ERP System to EWM.

SPRO → IMG → SCM Extended Warehouse Management → Extended Warehouse Management → Interfaces → ERP Integration → Delivery Processing → Map Document Types from ERP System to EWM.

Fig 31. Map Document Types from ERP System to EWM.

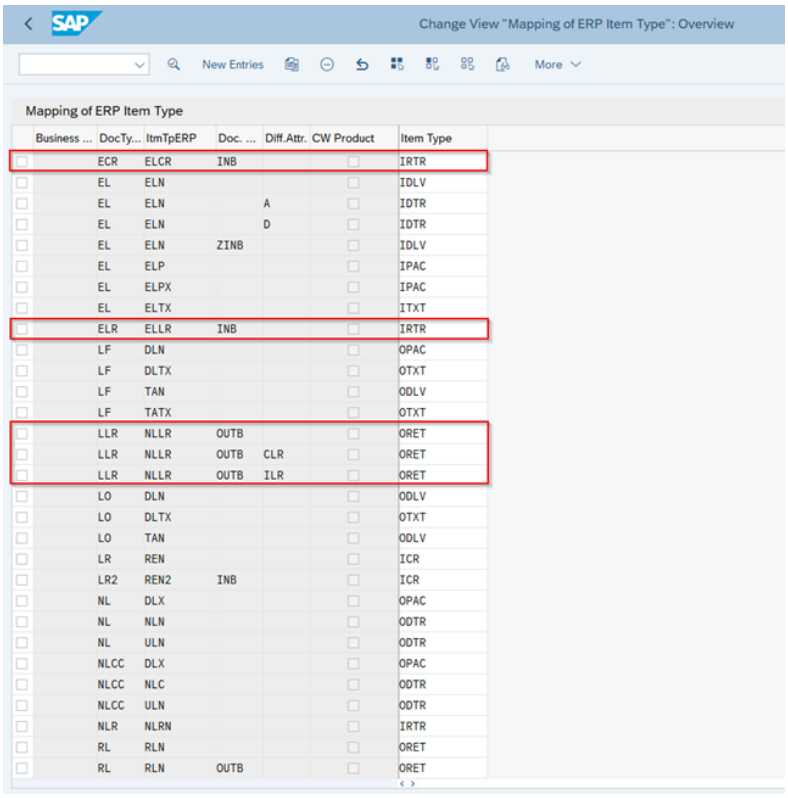


Source: Own elaboration

4. Map Item Types from ERP to EWM.

SPRO → IMG → SCM Extended Warehouse Management → Extended Warehouse Management → Interfaces → ERP Integration → Delivery Processing → Map Item Types from ERP to EWM.

Fig 32. Map Item Types from ERP to EWM.



Business ...	DocTy...	ItmTpERP	Doc. ...	Diff.Attr.	CW Product	Item Type
	ECR	ELCR	INB			IRTR
	EL	ELN				IDLV
	EL	ELN		A		IDTR
	EL	ELN		D		IDTR
	EL	ELN	ZINB			IDLV
	EL	ELP				IPAC
	EL	ELPX				IPAC
	EL	ELTX				ITXT
	ELR	ELLR	INB			IRTR
	LF	DLN				OPAC
	LF	DLTX				OTXT
	LF	TAN				ODLV
	LF	TATX				OTXT
	LLR	NLLR	OUTB			ORET
	LLR	NLLR	OUTB	CLR		ORET
	LLR	NLLR	OUTB	ILR		ORET
	LO	DLN				ODLV
	LO	DLTX				OTXT
	LO	TAN				ODLV
	LR	REN				ICR
	LR2	REN2	INB			ICR
	NL	DLX				OPAC
	NL	NLN				ODTR
	NL	ULN				ODTR
	NLCC	DLX				OPAC
	NLCC	NLC				ODTR
	NLCC	ULN				ODTR
	NLR	NLRN				IRTR
	RL	RLN				ORET
	RL	RLN	OUTB			ORET

Source: Own elaboration

2.5.1 Return Stock Transfer Order

Return stock transfer orders can be initiated manually using the Create Purchase Order app, transaction ME21N or automatically through follow-up activities from material inspections in ARM.

Table 2. Return Stock Transfer document types.

Document Type of Return Stock Transfer	Document Type Description
NB2C	Enhanced Returns Stock Transfer Order Cross-Company
UB2	Enhanced Returns Stock Transfer Order Intercompany

Source: Own elaboration

Critical fields that need to be filled are:

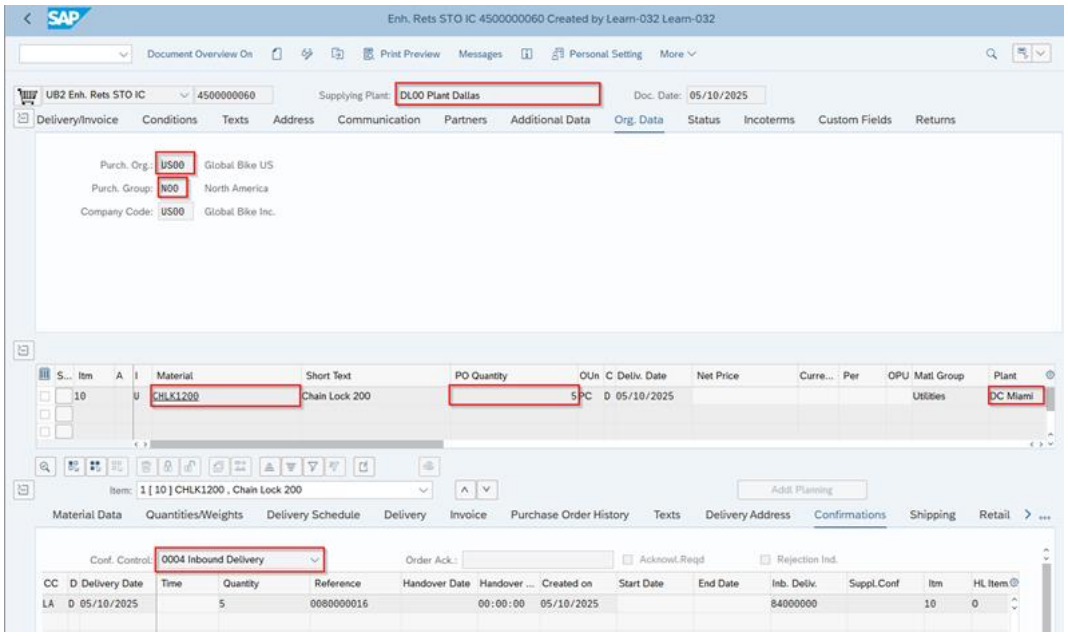
Header:

- Purchasing Organization,
- Purchasing Group,
- Supplying Plant.

Item:

- Material,
- Plant,
- Confirmation control key,
- Quantity.
-

Fig 33. Stock Transfer Order document.



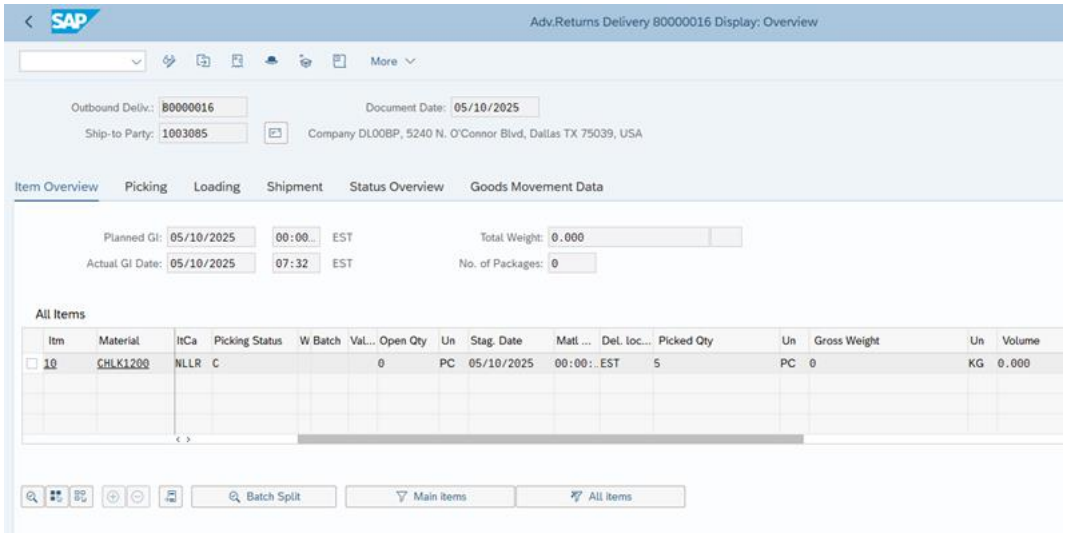
Source: Own elaboration

This ensures that the stock transfer order includes the supplying plant listed as the vendor, along with product information, the receiving plant, and the stock type.

2.5.2 Return Outbound Delivery

A return outbound delivery is automatically generated according to the configuration of the return stock transfer order. It can be also created manually by transaction VL10B.

Fig 34. Return Outbound Delivery document.



Source: Own elaboration

For enhanced store returns, SAP delivers standard delivery types and item categories.

Table 3. Return outbound delivery type and item category.

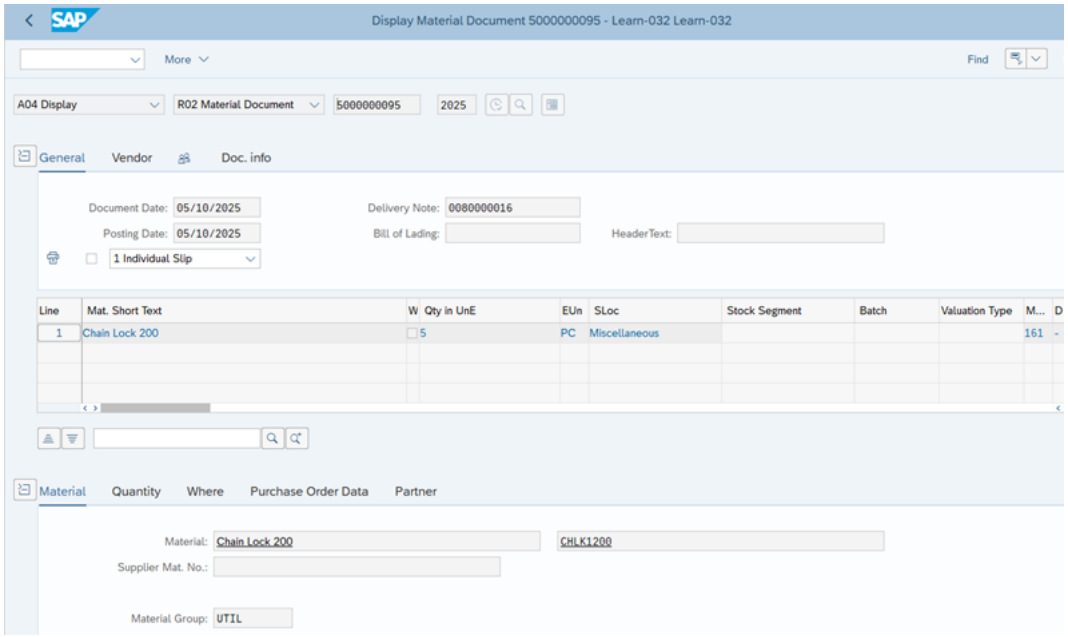
Delivery Type	LLR	Advanced Returns Delivery
Item Category	NLLR	Advanced Stock Transfer Order

Source: Own elaboration

2.5.3 Goods Issue

The goods issue can be recorded from the outbound delivery after picking or manually using the MIGO transaction by entering the STO number.

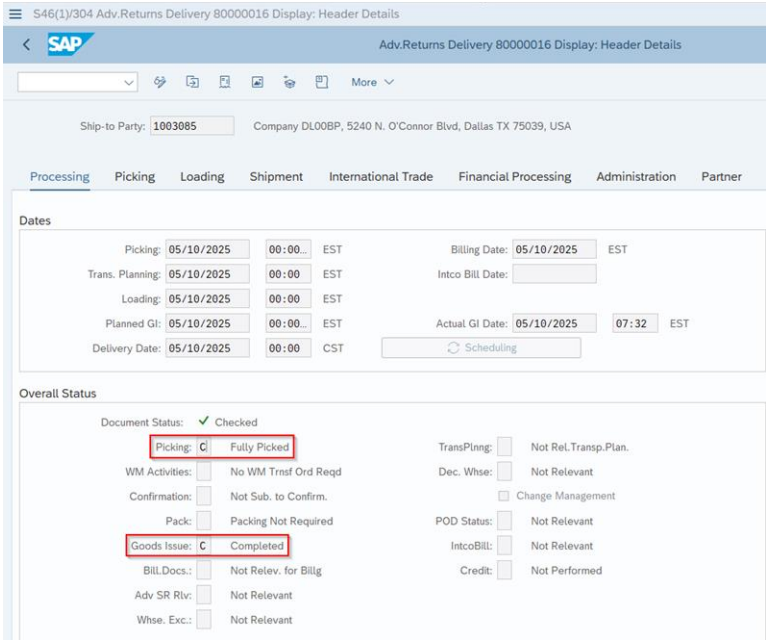
Fig 35. Goods Issue document.



Source: Own elaboration

The goods issue is recorded in the SAP S/4HANA system using movement type 161. Afterwards statuses of outbound delivery are updated C - “Completely processed” for Picking and Goods Issue.

Fig 36. Outbound Delivery statuses after successful Goods Issue posting.



Source: Own elaboration

2.5.4 Automatic Inbound Delivery

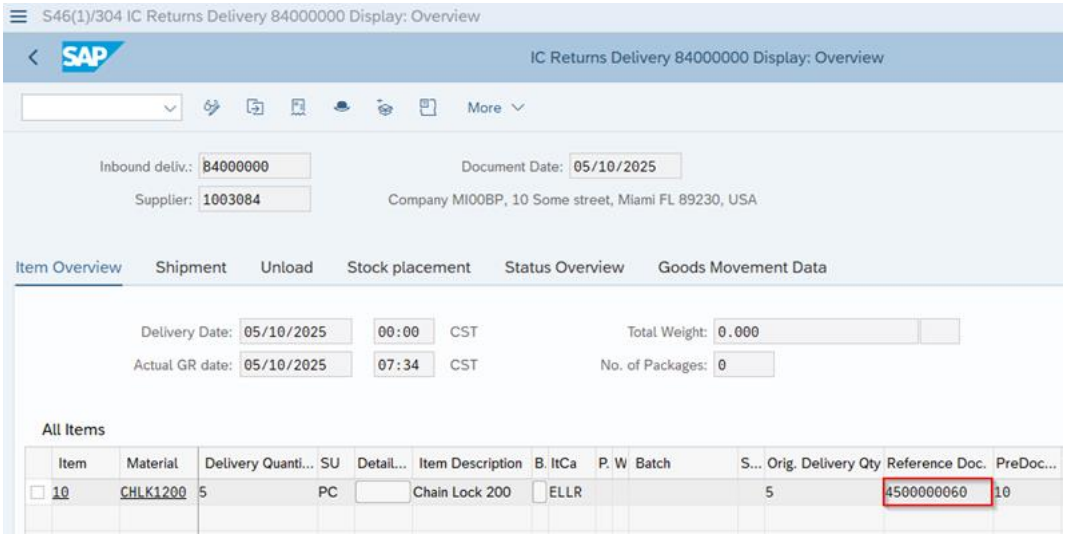
Following the goods issue posting for a return outbound delivery, the system automatically generates an intercompany inbound delivery using the standard SAP output type SPED. Standard document types provided by SAP can be extended by user-created document types depending on the business scenario.

Table 4. Return inbound delivery types and item categories.

Delivery Type	ELR	IC Returns Delivery (Intercompany)
Item Category	ELLR	Item Category for Advanced Returns, Intracompany Enhanced Store Returns
Delivery Type	ECR	CC Returns Delivery (Cross-Company)
Item Category	ELCR	Item Category for Advanced Returns, Cross-Company Enhanced Store Returns

Source: Own elaboration.

Fig 37. Return Inbound Delivery document.



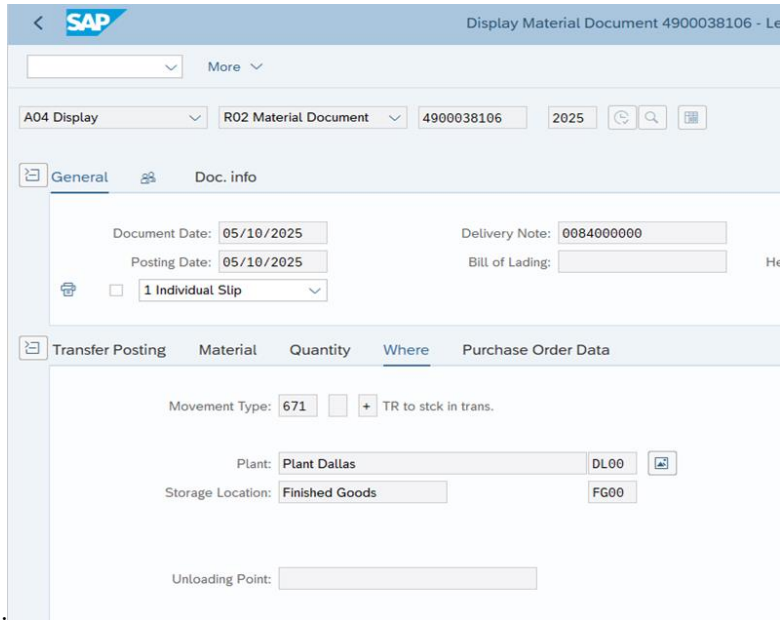
Source: Own elaboration.

Return Stock Transfer Order document is used as a reference document for Return Inbound Delivery.

2.5.5 Goods Receipt

After stock placement, Goods Receipt can be created from Inbound Delivery or manually using the MIGO transaction, just like Goods Receipt. The difference is used movement type.

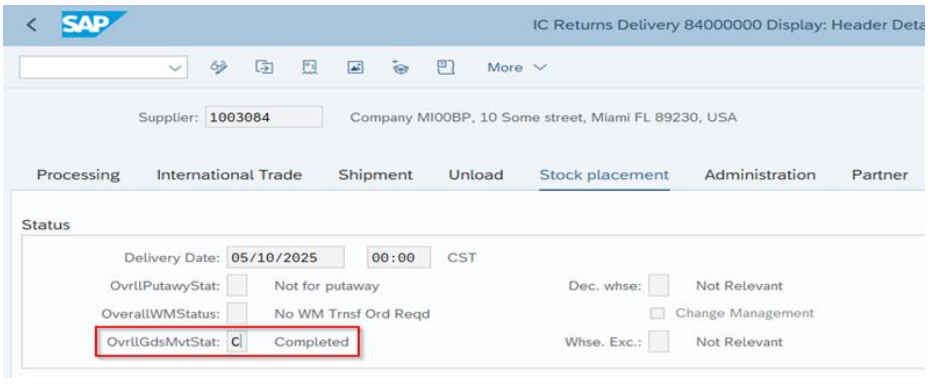
Fig 38. Goods Receipt document



Source: Own elaboration

After Goods Receipt is posted Overall Goods Movement Status of Inbound Deliver is updated to C - Completely processed.

Fig 39. Inbound Delivery statuses after successful Goods Receipt posting.

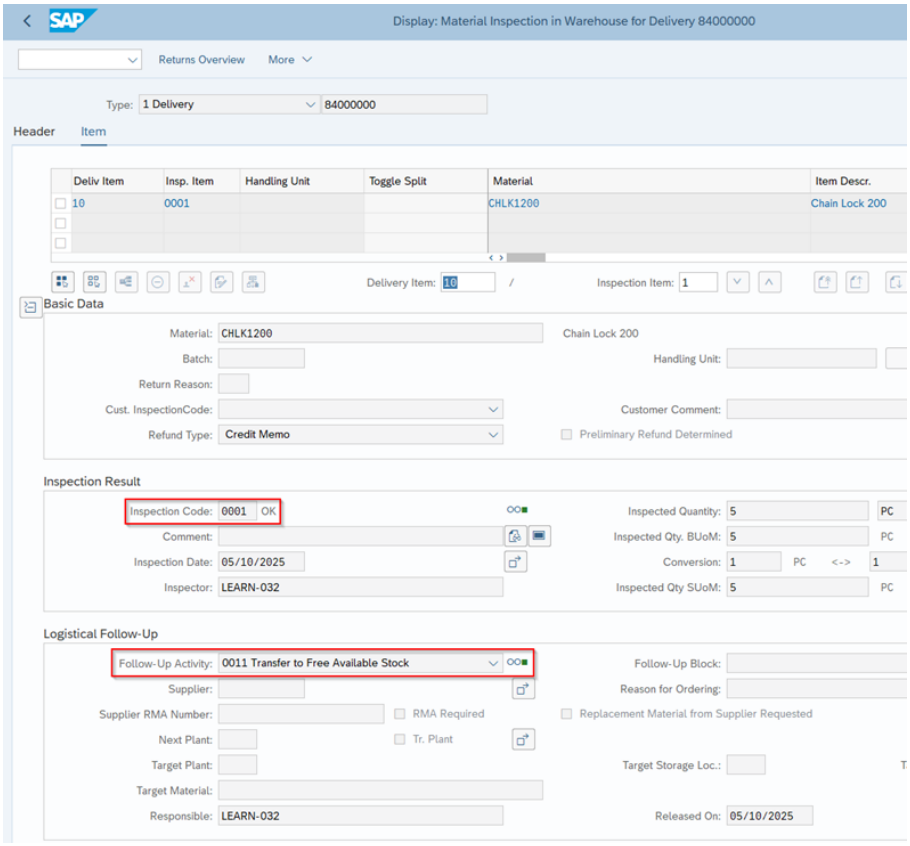


Source: Own elaboration.

2.5.6 Material Inspection

The final step in the return stock transfer order process involves conducting a material or quality inspection to transfer the stock to either usable inventory or to scrap/rework. It can be done using transaction MSR_INSPWH.

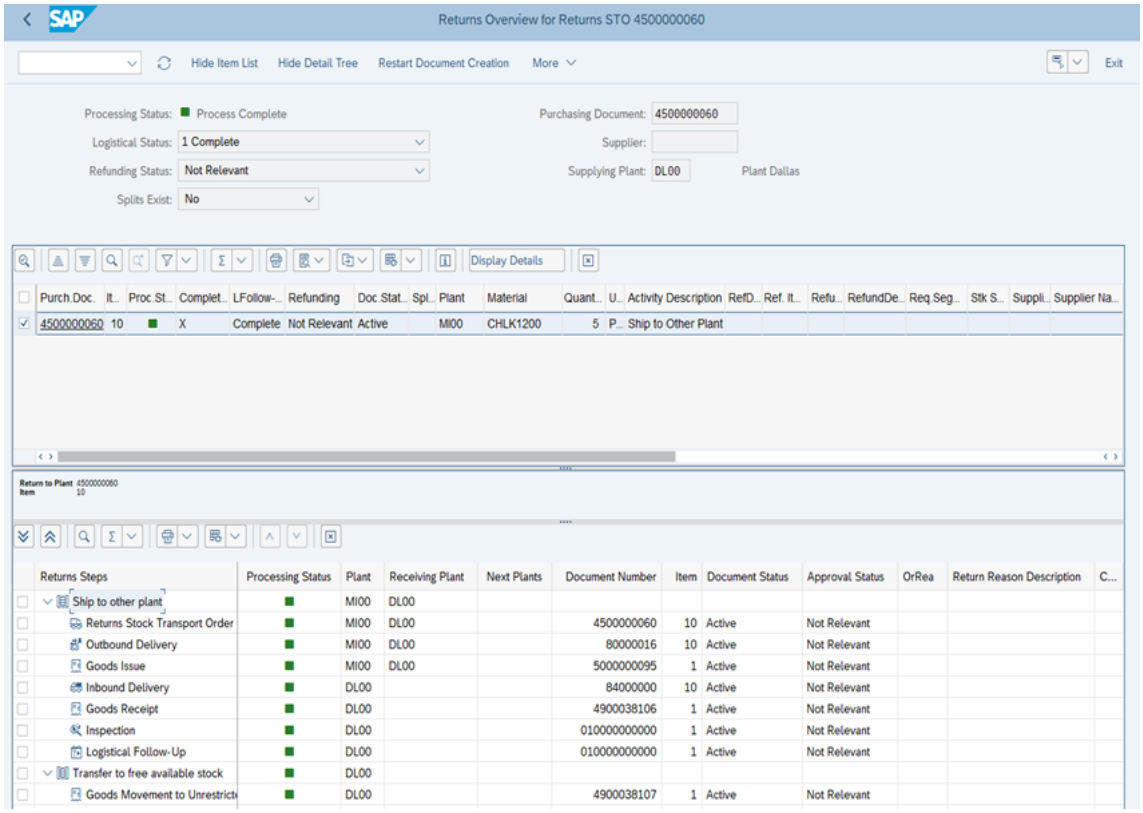
Fig 40. Inspection document.



Source: Own elaboration.

In this case provided Inspection Code is 0001 OK and Follow-Up Activity is set to 0011 Transfer to Free Available Stock, which means the inspection was successful and the stock should be kept as usable/salable stock. According to the Inspection results the system will generate new documents based on the chosen Follow-Up Activity.

Fig 41. Process overview.



Source: Own elaboration.

After all steps are finished the Processing Status of Return is set to “Process Complete” which means all necessary documents are created correctly regarding return process.

3. SUMMARY AND CONCLUSION

In today's highly competitive and customer-focused environment, managing returns efficiently is essential for sustaining operational flexibility and meeting customer expectations. This thesis has examined the functionalities of Advanced Return Management (ARM) in SAP S/4HANA, highlighting its role in optimizing the complete return process.

By analyzing core elements such as return order categories, inspection procedures, and logistics execution, it is evident that ARM provides a consistent, transparent, and adaptable framework for return handling. Its automation capabilities such as output-based processing and the automatic creation of inbound and outbound deliveries help reduce manual workload, minimize errors, and shorten processing times.

To summarize, Advanced Return Management in SAP delivers a significant strategic benefit for companies seeking to streamline their reverse logistics. As the volume and complexity of returns continue to rise, leveraging ARM effectively will be crucial for enhancing sustainability, building customer trust, and achieving excellence in modern supply chain operations.

4. BIBLIOGRAPHY

[1] SAP. (n.d.) *Managing customer returns*. SAP Learning. Retrieved May 27, 2025, from *https://learning.sap.com/learning-journeys/exploring-functions-and-innovations-in-sap-s-4hana-sales/managing-customer-returns_f224d287-07ad-41fe-9897-2eb2ee4b33dc*

[2] SAP. (n.d.). Outlining customer returns in SAP S/4HANA. SAP Learning. Retrieved May 27, 2025, from *https://learning.sap.com/learning-journeys/configuring-cross-application-processes-in-sap-s-4hana-sales-and-procurement/outlining-customer-returns-in-sap-s-4hana*

[3] SAP. (n.d.) *Using best practices for customer returns in SAP S/4HANA*. SAP Learning. Retrieved May 27, 2025, from *https://learning.sap.com/learning-journeys/configuring-cross-application-processes-in-sap-s-4hana-sales-and-procurement/using-best-practices-for-customer-returns-in-sap-s-4hana*

[4] SAP Community. (2024, August 10). *SAP S/4HANA Advanced Returns Management (ARM): A Basic Guide*. SAP Community. *https://community.sap.com/t5/enterprise-resource-planning-blog-posts-by-members/sap-s-4hana-advanced-returns-management-arm-a-basic-guide/ba-p/14038268*

[5] SAP Community, *SAP S/4HANA Advanced Returns Management (ARM): A Basic Guide,* (2025, March 13)

[6] Xeptum. Discover SAP ARM for Advanced Returns Management. Xeptum. *https://www.xeptum.com/en/news/discover-sap-arm-for-advanced-returns-management*, (2023, October 15)

[7] Xeptum. *Multi-level return with SAP ARM*. Xeptum, *https://www.xeptum.com/en/news/return-with-sap-arm*, (2023, September 4).

[8] SAP Help Portal, *https://help.sap.com/docs/SAP_ERP/f48e74ad3b3740bc8c9eaade394a3c1e/466a5a926ccb429387891e0ffc800c07.html*