



**Grundfos**  
**Supplier Integration guidelines**  
**Direct Materials**  
**Supply Chain Collaboration**

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## 1. Version History

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This log is updated each time this Process Document is updated. The log identifies the version number, the date the version was completed, the author of the changes, and a brief description of the changes.

Version	Date	Author	Description
1.0	18 August. 2022	Isabelle De Busschere - SAP Ariba	Initial Version of Document
2.0	7-14 September 2022	Isabelle (SAP Ariba) / Grundfos Team	Review during a call
3.0	23 September 2022	Grundfos	Final Version – Signed-off
4.0	10 September 2025	Lale (SAP)	Updated with Handling Units requirements
5.0	25 September 2025	Lale (SAP) / Arnon Grundfos Team	Review during a call
6.0	09 October 2025	Arnon Grundfos Team	Update HU Level
7.0	16 October 2025	Arnon (Grundfos)	Final Version – Signed-off

## 2. Grundfos cXML Mapping Requirements and Deltas

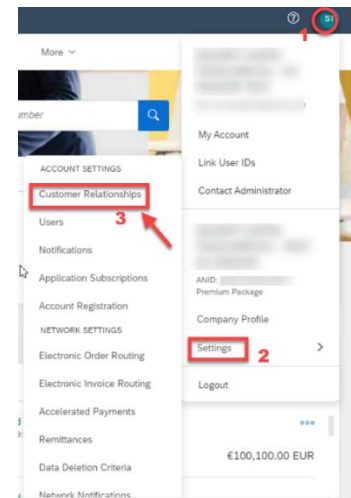
The following is a summary of the cXML requirements that are unique to Grundfos's procurement environment. Detailed explanation of these items can be found in the proceeding pages.

### 2.1. Grundfos Transaction Validation Rules

Grundfos has configured validation rules which apply specifically to ASN.

Please review these settings from your supplier account on AN.

1. Login to your supplier account on the AN.
2. Click on **your name** (1) then **Settings** (2) and click **Customer Relationships** (3) from the navigational bar just below.



3. Click on **Grundfos** under your list of **Current** trading partners.

<input type="checkbox"/>	Customer	Network ID	Relationship Type	Approved Date	Supplier Information Portal	Routing Type	Actions
<input type="checkbox"/>	[blurred]	[blurred]	Trading	16 Jul 2020	[blurred]	Default	Actions ▾
<input type="checkbox"/>	[blurred]	[blurred]	Trading	24 Sep 2020	[blurred]	Default	Actions ▾
<input type="checkbox"/>	[blurred]	[blurred]	Trading	2 Sep 2019	[blurred]	Default	Actions ▾
<input type="checkbox"/>	[blurred]	[blurred]	Trading	13 Jan 2020	[blurred]	Custom	Actions ▾
<input type="checkbox"/>	[blurred]	[blurred]	Trading	26 Nov 2021	[blurred]	Default	Actions ▾

4. Review all available sections

Order Confirmation and Ship Notice Rules	
Allow suppliers to confirm an order multiple times. ⓘ	No <span>Confirm only once at the line-item level. ⓘ</span>
Allow suppliers to send order confirmations for material orders. ⓘ	Yes
Allow suppliers to send order confirmations for material orders at the line-item level. ⓘ	No
Allow suppliers to reject quantities for material orders at the line-item level in order confirmations. ⓘ	No
Require suppliers to send order confirmations for material orders at the schedule line-item level. ⓘ	No
Apply tolerance for quantity at the schedule line-item level.	No

### 2.2. cXML Deltas (sample files)

In the excel workbook you will find baseline cXML transactions accepted by the SAP Business Network with the additional cXML requirements for Grundfos.

### **3. Scope**

---

**Grundfos's Prod ANID: AN01480939393**  
**Grundfos's Test ANID: AN01480939393-T**

#### **3.1. Required Transactions / Optional Transactions**

**Please note that this version of Integration guidelines only covers the scope of Direct Materials – Supply Chain Collaboration (SCC)**

Please review the list of the documents and processes presented below. Required and Optional transactions will be discussed directly with Grundfos team and the supplier case by case.

#### **3.2. Locations in scope**

Ship To and Bill To will be provided on a case-by-case basis to each supplier. Please make sure to contact the Grundfos team in order to be provided with the needed information.

#### **3.3. Materials in scope**

Direct Material: Yes  
Indirect Material: No

### **4. Processes – Direct Materials**

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#### **4.1. Processes in scope**

Please note that the processes in scope are discussed with the supplier per each case. This list represents the general scope of Grundfos project.

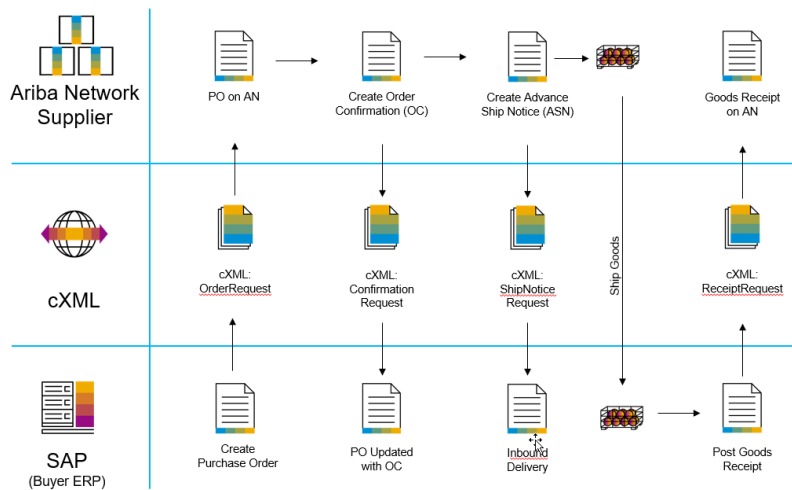
#### **4.2. Currently available processes**

- Standard Direct PO Collaboration
- Subcontracting PO Collaboration
- Return PO Collaboration

### 4.3. Processes in detail:

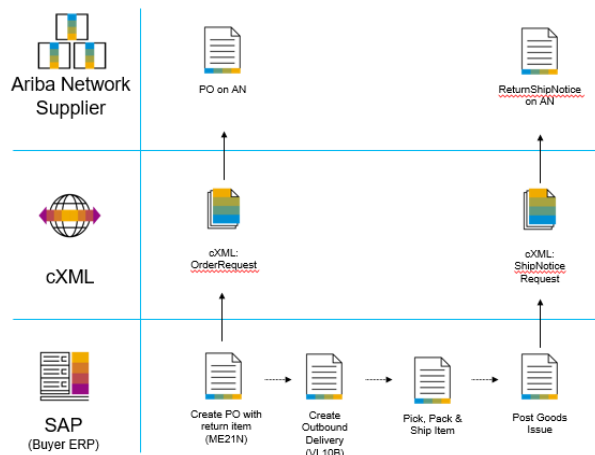
➤ **Standard Direct PO Collaboration / Subcontracting PO Collaboration**

SAP Business Network Terminology	Direction	Grundfos Terminology
Purchase Order (PO) / Subcontracting PO	Sent by Grundfos to supplier	Purchase Order
Order Confirmation (OC)	Sent by supplier to Grundfos	Order Confirmation
Advanced Shipping Notice (ASN)	Sent by supplier to Grundfos	Advanced Shipping Notice
Goods Receipts (GR)	Sent by Grundfos to supplier	Goods Receipts



✓ **Return PO Collaboration**

SAP Business Network Terminology	Direction	Grundfos Terminology
Return Purchase Order	Sent by Grundfos to supplier	Return Purchase Order
Return Ship Notice	Sent by Grundfos to supplier	Return Ship Notice



**Note:** the scope of the project is validated by Grundfos team per each case. Please make sure to confirm with Grundfos team the business scope that applies to you.

## 5. Standard Direct PO Collaboration / Subcontracting PO Collaboration

### Description of the flow:

1. Grundfos sends to the supplier, in SAP Business Network, the **Subcontracting Purchase Order/ Standard Direct Purchase Order** (Purchase Order Request in cXML)
2. Supplier receives the Grundfos Subcontracting PO / standard direct PO, will internally review it and send back to Grundfos an **Order confirmation** (Confirmation request in cXML) for materials.
3. Supplier creates an **Advance Ship Notice** (Ship Notice Request in cXML) for the finished good to inform Grundfos of the upcoming delivery of their ordered materials.
4. Once the materials physically arrived at Grundfos, an internal **Goods Receipts** (Receipt Request in cXML) will be posted against the ASN. The GR is sent to the supplier in SAP Business Network.

### 5.1. Standard Direct PO / Subcontracting PO

Customer supports Order Confirmation. Supported methods of providing them are:

- cXML
- Online

#### 5.1.1. Purchase Order types

Types of Purchase order	Comments Standard Direct PO	Comments Subcontracting PO
<b>New PO</b>	Yes	Yes
<b>Change PO</b>	Yes	Yes
<b>Cancel PO</b> (full or partial)	Yes	Yes
<b>PO with attachments</b>	<b>Yes</b> – please note that a copy of the PO, coming directly from the ERP of Grundfos is being sent together with the actual cXML message. Please make sure to confirm with the Grundfos team if any other type of attachments might be attached for you.	<b>Yes</b> – please note that a copy of the PO, coming directly from the ERP of Grundfos is being sent together with the actual cXML message. Please make sure to confirm with the Grundfos team if any other type of attachments might be attached for you.
<b>POs with Shipping on line level</b>	✓ <b>Yes</b> - Please note that there may be cases in which Storage location will not be populated for one of the lines of the PO. In this case the Shipping information will be presented on the line level (instead of header level) ✓ <b>No in case of Third-Party PO</b> - Items are group in PO with same Item Ship To address	<b>No</b> - Items are group in PO with same Item Ship To address
<b>Service PO</b>	No	No
<b>Free text PO</b>	Yes – please make sure to confirm with the Grundfos team what are the cases in which you might receive such a Po or if this scope applies to you individually.	No
<b>Legacy Orders (Cut-Over Process)</b>	No	No
<b>Blanket POs</b>	No	No

### 5.1.2. PO details

PO number and part Id info	Standard Direct PO	Free Text Po	Subcontracting PO
PO number starting with	45* (numeric only)	45* (numeric only)	45* (numeric only)
Maximum number of characters	10	10	10
Special characters	No	No	No
Grundfos Part ID provided	Yes	No	Yes. Raw and pack materials
EAN / UPC identifier or code	Yes - Provided if maintained in Material Master Data or purchasing Info Record on Grundfos side but not required for suppliers to consume the information	No	Yes - Provided if maintained in Material Master Data or purchasing Info Record on Grundfos side but not required for suppliers to consume the information
Supplier Part ID provided	Yes - Provided if maintained in Material Master Data or purchasing Info Record on Grundfos side	No	Yes - Provided if maintained in Material Master Data or purchasing Info Record on Grundfos side
Terms of Delivery	At Header level or Line level, depending of the material and if maintained on Grundfos side	At Header level or Line level, depending of the material and if maintained on Grundfos side	At Header level or Line level, depending of the material and if maintained on Grundfos side
Mode of Transport	Yes - Extrinsic: "transportRoute"	Yes - Extrinsic: "transportRoute"	Yes - Extrinsic: ""transportRoute"
<b>itemCategory</b>	n/a	n/a	<b>subcontract</b>

Indirect Scope - POs	SCC Standard PO Collaboration / Free Text Po	SCC Subcontracting	SCC – Return PO
Po number starting: <b>45xxxxxxxx</b> (Doc type NB) Distinction done using the Classification (ERPCommodityCode)	Po number starting: <b>45xxxxxxxx</b> (Doc type NB)	Po number starting: <b>45xxxxxxxx</b> (Doc type NB)	Po number starting: <b>45xxxxxxxx</b> (Doc type ZRET)

### 5.1.3. Addresses provided in the POs

Ship To and Bill To address list is provided as part of the Seller Integration Guidelines

Information provided in the SA	Comments Standard Direct PO	Comments Subcontracting PO
Grundfos PO will contain Ship To address at header level	Yes	Yes
Grundfos PO will contain Ship To address IDs buyerLocationID	Yes	Yes
Grundfos PO will contain Ship To address IDs storageLocationID	Yes	Yes

Multiple ship To addresses in the same PO ( <i>This can create issues with the integrated suppliers we strongly recommend to avoid this type</i> )	✓ Yes ✓ <b>No in case of Third-Party PO</b> - Items are group in PO with same Item Ship To address	<b>No</b> - Items are group in PO with same Item Ship To address
Sales contact information - Supplier's responsible sales contact	Optional	Optional
BillTo information with AddressID is sent in the PO	Yes	Yes
SoldTo information with AddressID	Yes	Yes

**Note:** in Case of Third Party PO, the shipTo contained is the one from the location where the materials should be delivered

#### 5.1.4. Unit of measure

All cXML transactions are required to support and conform to the United Nations Units of Measure Common Code system (UNUOM).

For a full list of UNUOM Codes, refer to the following site:  
[http://www.unece.org/cefact/codesfortrade/codes\\_index.html](http://www.unece.org/cefact/codesfortrade/codes_index.html)

The list of UoM used in the project are shared in the attached Excel file

#### 5.1.5. Advance Pricing details

The <UnitPrice> tag contains the line item unit price. The total price for the line is not transmitted but can be calculated by multiplying the Unit Price and the quantity.

The <PriceBasisQuantity> qualifies Price with a 'Price Per' quantity. It is set to 1 in most cases with a <conversionFactor> to 1.

<PriceBasisQuantity> includes a unit of measure to describe what the price and price quantity applies to, such as, a price of 100€ could apply to 1 case of product or to 25 Kilograms.

Examples below show how to perform the price calculation at line level.

Example 1:

Line item Quantity	100 pieces
Price per UOM	3 CHF for 5 PF (pallet)
Qty of Packaging UOM	5 PF
Conversion factor	1 piece = 0.2 PF (20 pieces per PF)
Price at line level	$100 \times 3/5 \times 0.2 = 12$ CHF

Example 2:

Line item Quantity	5223 pieces
Price per UOM	725 CHF for 1000 MCT
Qty of Packaging UOM	1000 MCT
Conversion factor	1 piece = 0.034 MCT
Price at line level	$5223 \times 725/1000 \times 0.034 = 128.747$ CHF

\*Please note that these scenarios are just examples to show you the correct way of calculation. They might not be relevant for Grundfos.

Here is an example of this segment:

```
<ItemDetail>
  <UnitPrice>
    <Money currency="EUR">9450</Money>
  </UnitPrice>
  <Description xml:lang="en">Description 1</Description>
  <UnitOfMeasure>KGM</UnitOfMeasure>
  <PriceBasisQuantity quantity="1000" conversionFactor="1">
    <UnitOfMeasure>KGM</UnitOfMeasure>
  </PriceBasisQuantity>
```

### 5.1.6. PO Specifications

Purchase Order might contain **Control Keys**. You can find more explanation in the cXML Delta Sample.

The Control Keys section provides:

- Instructions on whether the supplier should send an Order Confirmation, an Advance Shipment Notice or (in a later phase) the Invoice message
- Tolerances allowed by the Grundfos in the supplier Order confirmation on, quantity or date
- Tolerances allowed by the Grundfos in the supplier Advance Shipment Notice on, quantity or date

This is important to be taken into account by the suppliers.

#### **Control Keys:**

```
<ControlKeys>
  <OCInstruction value="requiredBeforeASN">
    <Lower>
      <Tolerances>
        <TimeTolerance limit="999" type="days"/>
      </Tolerances>
    </Lower>
    <Upper>
      <Tolerances>
        <TimeTolerance limit="999" type="days"/>
      </Tolerances>
    </Upper>
  </OCInstruction>
  <ASNInstruction value="allowed">
    <Lower>
      <Tolerances>
        <TimeTolerance limit="999" type="days"/>
      </Tolerances>
    </Lower>
    <Upper>
      <Tolerances>
        <TimeTolerance limit="999" type="days"/>
      </Tolerances>
    </Upper>
  </ASNInstruction>
  <InvoiceInstruction value="isNotERS"/>
</ControlKeys>
```

### 5.1.7. PO Customizations

cXML provides for extension by the use of the 'Extrinsic' element. The Extrinsic element can appear within various cXML elements.

Please be so kind to review the Deltas for the full list of the extrinsics from Grundfos PO's and consult the Deltas` extrinsic Sheet: Extrinsic available in the Delta file.

### 5.1.8. PO with attachments

Purchase orders may contain an attachment. Integrated suppliers who want to integrate the attachments will **need to support MIME envelope**.

Whenever we have a cXML with attachments CIG will create a MIME envelope with the following characteristics

Payload will contain Content-Type: text/xml

Payload will be transferred (Content-Transfer-Encoding) in 7 bit when available or base64 if the payload contains none 8bit characters. More information on <https://en.wikipedia.org/wiki/MIME#Content-Transfer-Encoding>

*If supplier chooses not to integrate and consume the attachment of PO, attachment will be available on the Portal for download*

## 5.2. Order Confirmation

Customer supports Order Confirmation. Supported methods of providing them are:

- cXML
- Online

Is Order confirmation mandatory ?	Standard Direct PO	Subcontracting PO
OC mandatory or optional	Mandatory	Mandatory

Order Confirmation Types Supported	Order Confirmation Types not Supported
Full PO Acceptance – fully quantity of PO	Partial Order Confirmation rejection (reject) for a part of a PO
Partial order confirmation (accept / Detail) for a part of a PO)	Partial Order Confirmation rejection (reject) for a part of a quantity of a line
Partial order confirmation (accept / Detail) for a part of a quantity of a line	Full rejection is not allowed

### 5.2.1. OC Attributes

Attributes and Requirements	Comments Standard Direct PO	Comments Subcontracting PO
Unit price is required	No – Optional.	No
Unit of measure is required	Yes – Mandatory and needs to match the UoM from the PO	Yes – Mandatory and needs to match the UoM from the PO
Estimated shipping date	No	No
Comments are required only in the case of a change in an order confirmation vs the PO	n/a	n/a
Unit price corrections	Not Allowed	Not Allowed
Supplier and Buyer Part Ids changed or additions	No Please note that free text Pos / Lines are also in scope of the project. In the case of free text Pos/lines the Grundfos Part ID is NOT provided	No
Attachments allowed	Yes	Yes
Over delivery tolerance allowed	Yes, unless defined on PO document (OC Control keys)	Yes, unless defined on PO document (OC Control keys)
Under delivery tolerance allowed	Yes, unless defined on PO document (OC Control keys)	Yes, unless defined on PO document (OC Control keys)
Delivery date may be different from the one in the PO	Yes, unless defined on PO document (OC Control keys)	Yes, unless defined on PO document (OC Control keys)
Delivery date	Yes – Mandatory	Yes – Mandatory

### 5.2.2. Order confirmation rules:

#### Order Confirmation general rules

- ✓ An OC can only include items belonging to the same Purchase Order. (The message only allows to refer to a single PO number)
- ✓ If a supplier has started generating OCs from its ERP, these OCs cannot be edited from SAP Business Network. Similarly, if an OC is initially created from SAP Business Network subsequent OCs coming from a supplier ERP will not be accepted by SAP Business Network. This rule must be taken into account when defining the project cutover strategy.
- ✓ If a Confirmation Order message gets blocked in error on SAP Business Network, it will not reach Grundfos ERP. Rejection details can be found on the Cloud Integration Gateway Transaction Tracker.
- ✓ Grundfos has requested the OC to be sent before the ASN is sent for a new PO, sending an ASN without OC will cause a failure on Supplier CIG and report the error and the ASN will not reach the Grundfos ERP unless it was authorized in the PO

## Order Confirmation details based on Grundfos scenarios:

- ✓ Confirmation header :
  - The Order confirmation message is only allowed by SAP Business Network if on the corresponding PO line item <OCInstruction> value equals "allowed" or "requiredBeforeASN"
  - <ConfirmationHeader> operation must equal "new" for the 1st OC transmission, then "update" on the following ones

```

- <Request deploymentMode="test">
- <ConfirmationRequest>
  <ConfirmationHeader confirmID="OC123 Test" operation="update" type="detail" noticeDate="2019-01-18T02:02:18-08:00"> </ConfirmationHeader>

```

## OC and reconfirmation triggered by the reception of a new PO version

- ✓ The confirmation status of unchanged line items on a previous order is retained on a subsequent change order.
- ✓ The confirmation status of changed line items is not retained in case of one of the following segment is changed in the Change Order

Section	Field
Line Item	<ul style="list-style-type: none"> <li>• Quantity</li> <li>• Requested Delivery Date</li> <li>• Unit Price</li> <li>• Supplier Part ID</li> <li>• Auxiliary Part Number</li> <li>• Estimated Delivery Date</li> <li>• Description</li> <li>• Unit of Measure</li> <li>• Price Basis Quantity (Price Unit, Unit Conversion, and Price Unit Quantity)</li> <li>• Ship Date</li> <li>• Buyer Part Number</li> <li>• Manufacturer Part ID</li> <li>• Manufacturer Name</li> </ul>

- ✓ Summary of the rules on the "operation" attribute:
  - The operation attribute with a "new" value is only used when one or more lines are confirmed for the first time. Several OCs referring to the same Order having operation= "new" can't be sent.
  - The operation attribute with an "update" value is used when at least one of the confirmed lines was previously confirmed (even if at least one of them is newly confirmed). Confirming with "update" requires that all previously confirmed lines are included again in the OC message. In this case it may happen that an OC line confirms a delivery in the past which is accepted by SAP Business Network.

- Summary table:

Sequence of messages	PO	1st Order Confirmation	2nd Order Confirmation	3rd Order Confirmation
	New PO sent with 4 lines	Confirmation of line 1 and 2	Confirmation of line 3 and 4	New delivery date confirmed for Line 4
Operation value		new	update	update
Lines included in the message	Line 1	<b>Line 1</b>	Line 1	Line1
	Line 2	<b>Line 2</b>	Line 2	Line 2
	Line 3		<b>Line 3</b>	Line 3
	Line 4		<b>Line 4</b>	<b>Line 4</b>

- ✓ Summary of possible business cases

		Message	OC operation attribute	Message content			Comment
<b>Case 1</b>	Step 1	PO1		PO Line 1	PO Line 2	PO Line 3	
	Step 2	OC1	new	<b>PO Line 1</b>	<b>PO Line 2</b>	<b>PO Line 3</b>	Confirmation of all 3 lines.
	Step 3	OC2	update	PO Line 1	PO Line 2	<b>PO Line 3</b>	Reconfirmation for line 3 with a new delivery date. Line 1 and line 2 have to be included again.
	Step 4	PO1 update		PO Line 1	PO Line 2	PO Line 3	Changes made on lines 1, 2, 3 (on one of the key fields) is causing the confirmation status to be reset on all 3 lines
	Step 5	OC3	new	<b>PO Line 1</b>	<b>PO Line 2</b>	<b>PO Line 3</b>	OC has to be sent as new. Sending the OC as update will fail as all statuses were reset by the new PO version
<b>Case 2</b>	Step 1	PO1		PO Line 1	PO Line 2	PO Line 3	
	Step 2	OC1	new	<b>PO Line 1</b>	<b>PO Line 2</b>	<b>PO Line 3</b>	Confirmation of all 3 lines.
	Step 3	PO1 update		PO Line 1	PO Line 2	PO Line 3	Changes made on lines 1, 2, 3 (on a non key field like comments, or incoterms) is causing the confirmation status to remain the same
	Step 4	OC2	update	PO Line 1	<b>PO Line 2</b>	PO Line 3	Supplier would like to modify some information in the OC regarding Line 2. OC has to be sent as update as the confirmation status was not reset
<b>Case 3</b>	Step 1	PO1		PO Line 1	PO Line 2		
	Step 2	OC1	new	<b>PO Line 1</b>			Confirmation of line 1 only
	Step 3	PO1 update			PO Line 2		PO line 1 is deleted. No change in PO line 2
	Step 4	OC2	new		<b>PO Line 2</b>		Confirmation of line 2
<b>Case 4</b>	Step 1	PO1		PO Line 1	PO Line 2		
	Step 2	OC1	new	<b>PO Line 1</b>	<b>PO Line 2</b>		Confirmation of all 2 lines
	Step 3	PO1 update			PO Line 2	PO Line 3	PO line 1 is deleted. No change in PO line 2. PO line 3 is added
	Step 4	OC2	update		PO Line 2	<b>PO Line 3</b>	Confirmation of line 3. Line 2 has to be included again

<b>Case 5</b>	Step 1	PO1		PO Line 1	PO Line 2	PO Line 3	
	Step 2	OC1	new	PO Line 1			Confirmation of only one line
	Step 3	OC2	update	PO Line 1	<b>PO Line 2</b>		Confirmation of line 2. Line 1 is included again
	Step 4	OC2	update	PO Line 1	PO Line 2	<b>PO Line 3</b>	Confirmation of line 3. Line 1,2 are included again

✓ Summary of authorized statuses per business case:

	Supplier Action	Confirmation Header Status	Item Level Status	Delivery date	Item Section
<b>Accept</b>	Accepted without any change	accept	1. accept (Mandatory if delivery date required in the rules for the OC) 2. No line item	1. Yes, Mandatory if delivery date required in the rules for the OC 2. n/a	No
	<b>Confirm</b>	Confirmed with changes to the delivery date	detail	accept	Mandatory
detail			detail	Mandatory	Yes
Confirm with changes to the quantity (within tolerance)		detail	accept	Mandatory if delivery date required in the rules for the OC	No
		detail	detail	Mandatory if delivery date required in the rules for the OC	yes
Confirm with changes to the price (within tolerance)	detail	detail	Mandatory if delivery date required in the rules for the OC	yes	

### 5.3. Ship Notice

Grundfos supports and requires Ship Notices. Supported methods of providing them are:

- cXML integration
- Portal

Is ASN mandatory?	Direct PO	Subcontracting PO
ASN mandatory or optional	Mandatory	Mandatory

ASN Types Supported	ASN Types NOT Supported
Full ASN	
Partial ASN for a part of a PO	
Partial ASN for a part of a quantity of a line	
Summary ASN (one ASN that covers multiple Grundfos PO)	
Update ASN	
Delete ASN	

<b>Fields and Attributes</b>	<b>Comments Standard Direct PO</b>	<b>Comments Subcontracting PO</b>
Ship Notice ID	Mandatory	Mandatory
Ship Notice Date is mandatory	Mandatory	Mandatory
Delivery date is mandatory. Date when the goods are expected to be in delivery location or to be dispatched depending of the case.	Yes	Yes
Actual shipping date	Mandatory	Mandatory
Reference of the number of the Grundfos Purchase Order	Mandatory	Mandatory
Reference of the number of the line from the Grundfos Purchase Order	Mandatory	Mandatory
Comments header or line	Optional	Optional
Unit of measure	Mandatory	Mandatory
Unit price	Optional	Optional
Item Description	Yes	Yes
Supplier and Buyer Part Ids changed or additions (versus the Purchase Order)	Not allowed Please note that free text Pos / Lines are also in scope of the project. In the case of free text Pos/lines the Grundfos Part ID is NOT provided	Not allowed
Handling units (Packaging information)	Is mandatory and required by Grundfos for the delivery of materials (not services).  Please make sure to contact Grundfos team and review your individual specifics and number ranges applied to your case.	Is mandatory and required by Grundfos for the delivery of materials (not services).  Please make sure to contact Grundfos team and review your individual specifics and number ranges applied to your case.

### 5.3.1 ASN with Packaging – Handling Units

Grundfos expects to have the following Packaging cases on the ASN. Please discuss with customer if the Handling units applicable to you.

#### What is a handling unit (HU)?

A handling unit might be a loaded truck, pallet or box and:

- Always consists of a packaging material and a packed quantity
- Might contain smaller handling units
- Is assigned a unique ID number

Packing hierarchy [What's this?](#)

B501 1

Handling Unit Type

material number/Description of the goods packed

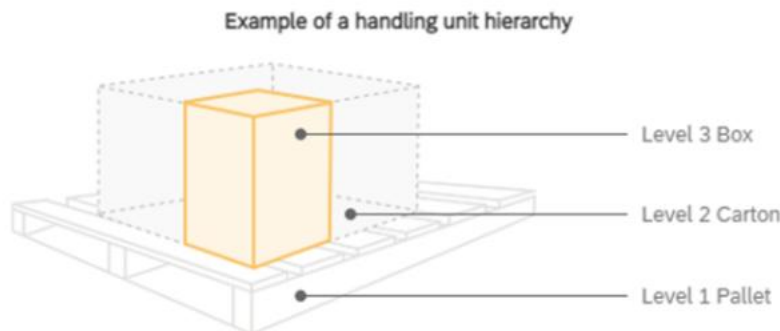
Package ID

Handling unit type	ASN item no.	Global individual asset ID	Pack ID	Part no. and description	Packed quantity	Batch ID	Production date	Expiry date	Package document No.
Handling Unit 1	B501 1 (29/29)	20.1	000000888	1	0	29 H87	10254	16 nov 2023	
		Length	Height	Width	Unit	Gross weight	Net weight		
		22	15	22	CMT	0.12	0.12		

#### What are packaging levels?

Packaging levels describe the relationships among different packaging materials within a group of handling units. In SAP Business Network, Level 1 is always the largest handling unit.

The picture represents one handling unit:



Only Level 1 packaging is used for ASN in Ariba.

Please refer to the excel Delta files to have a detailed description of the Handling Unit information to be sent in the ASN

### 5.4. Goods Receipts

Grundfos supports and is transmitting Goods receipts after successfully receiving and processing the ASNs from the supplier.

Supported methods of providing them are:

- cXML

- Online

<i>Fields and Attributes</i>	<i>Comments Standard Direct PO</i>	<i>Comments Subcontracting PO</i>
Good Receipt ID	Yes	Yes
Good Receipt Date	Yes	Yes
closeForReceiving	Yes – no more delivery is expected for the PO	Yes– no more delivery is expected for the PO
Grundfos Material Code (BuyerPartID) provided	Yes - Please note that free text Pos / Lines are also in scope of the project. In the case of free text Pos/lines the Grundfos Part ID is NOT provided	Yes
Supplier Part ID provided	only if maintained Please note that free text Pos / Lines are also in scope of the project. In the case of free text Pos/lines the Grundfos Part ID is NOT provided)	only if maintained on Grundfos side
Ship Notice Reference (shipNoticeID)	Yes	Yes
shipNoticeLineNumber	Yes	Yes
Unit price and Currency	Yes	No

Note : in case of a Purchase Order for a Third Party, there is no Good Receipt send back by Grundfos

## 6. Return Purchase Order Collaboration

### ***Description of the flow:***

1. Grundfos sends to the supplier, in SAP Business Network, the **Return Purchase Order**
2. Grundfos will send to the supplier, in SAP Business Network, the **Return Ship Notice** (if the material is not scrapped)  
In case of scrapped materials, this one is not returned
3. The supplier will receive the **Return Ship Notice**

### 6.1. Return PO

Grundfos supports and is transmitting Return PO to return a quantity. The Return PO is sent to the supplier in SAP Business Network.

Supported methods of providing them are:

- cXML
- Online

#### 6.1.1. Return Purchase Order types

<b>Types of Purchase order</b>	<b>Comments Standard Direct PO</b>
<b>New PO</b>	Yes
<b>Change PO</b>	Yes
<b>Cancel PO</b> (full or partial)	Yes

<b>PO with attachments</b>	Yes – please note that a copy of the PO, coming directly from the ERP of Grundfos is being sent together with the actual cXML message. Please make sure to confirm with the Grundfos team if any other type of attachments might be attached for you.
<b>POs with Shipping on line level</b>	No
<b>Service PO</b>	No
<b>Free text PO</b>	Yes – please make sure to confirm with the Grundfos team what are the cases in which you might receive such a Po or if this scope applies to you individually.
<b>Legacy Orders (Cut-Over Process)</b>	No
<b>Blanket POs</b>	No

### 6.1.2. PO details

PO number and part Id info	Return Direct PO	Free Text Return Po
PO number starting with	45* (numeric only)	45* (numeric only)
Maximum number of characters	10	10
Special characters	No	No
documentType	ZRET	ZRET
isReturn="yes"	Indicates that it's a Return PO	Indicates that it's a Return PO
isDeliveryCompleted="yes"	All the items have been delivered	All the items have been delivered
Grundfos Part ID provided	Yes	No
EAN / UPC identifier or code	Yes - Provided if maintained in Material Master Data or purchasing Info Record on Grundfos side but not required for suppliers to consume the information	No
Supplier Part ID provided	Yes - Provided if maintained in Material Master Data or purchasing Info Record on Grundfos side	No
Terms of Delivery	At Header level or Line level, depending of the material and if maintained on Grundfos side	At Header level or Line level, depending of the material and if maintained on Grundfos side

**Note :** On case of Return Purchase Order the Total Price is negative

```
<Total>
  <Money currency="EUR">-135.20</Money>
</Total>
```

### 6.1.3. Addresses provided in the POs

Ship To and Bill To address list is provided as part of the Seller Integration Guidelines

Information provided in the SA	Comments Standard Direct PO	Comments Subcontracting PO
Grundfos PO will contain Ship To address at header level	Yes	Yes
Grundfos PO will contain Ship To address IDs buyerLocationID	Yes	Yes
Grundfos PO will contain Ship To address IDs storageLocationID	Yes	Yes

Multiple ship To addresses in the same PO ( <i>This can create issues with the integrated suppliers we strongly recommend to avoid this type</i> )	No	No
Sales contact information - Supplier's responsible sales contact	Optional	Optional
BillTo information with AddressID is sent in the PO	Yes	Yes
Sold To information with AddressID	Yes	Yes

#### **6.1.4. Unit of measure**

All cXML transactions are required to support and conform to the United Nations Units of Measure Common Code system (UNUOM).

For a full list of UNUOM Codes, refer to the following site:  
[http://www.unece.org/cefact/codesfortrade/codes\\_index.html](http://www.unece.org/cefact/codesfortrade/codes_index.html)

The list of UoM used in the project are shared in the attached Excel file

### 6.1.5. Advance Pricing details

The <UnitPrice> tag contains the line item unit price. The total price for the line is not transmitted but can be calculated by multiplying the Unit Price and the quantity.

The <PriceBasisQuantity> qualifies Price with a 'Price Per' quantity. It is set to 1 in most cases with a <conversionFactor> to 1.

<PriceBasisQuantity> includes a unit of measure to describe what the price and price quantity applies to, such as, a price of 100€ could apply to 1 case of product or to 25 Kilograms.

Examples below show how to perform the price calculation at line level.

Example 1:

Line item Quantity	100 pieces
Price per UOM	3 CHF for 5 PF (pallet)
Qty of Packaging UOM	5 PF
Conversion factor	1 piece = 0.2 PF (20 pieces per PF)
Price at line level	$100 \times 3/5 \times 0.2 = 12$ CHF

Example 2:

Line item Quantity	5223 pieces
Price per UOM	725 CHF for 1000 MCT
Qty of Packaging UOM	1000 MCT
Conversion factor	1 piece = 0.034 MCT
Price at line level	$5223 \times 725/1000 \times 0.034 = 128.747$ CHF

\*Please note that these scenarios are just examples to show you the correct way of calculation. They might not be relevant for Grundfos.

Here is an example of this segment:

```
<ItemDetail>
  <UnitPrice>
    <Money currency="EUR">9450</Money>
  </UnitPrice>
  <Description xml:lang="en">Description 1</Description>
  <UnitOfMeasure>KGM</UnitOfMeasure>
  <PriceBasisQuantity quantity="1000" conversionFactor="1">
    <UnitOfMeasure>KGM</UnitOfMeasure>
  </PriceBasisQuantity>
```

### 6.1.6. PO Customizations

cXML provides for extension by the use of the 'Extrinsic' element. The Extrinsic element can appear within various cXML elements.

Please be so kind to review the Deltas for the full list of the extrinsics from Grundfos PO's and consult the Deltas' extrinsic Sheet: Extrinsic available in the Delta file.

### 6.1.7. PO with attachments

Purchase orders may contain an attachment. Integrated suppliers who want to integrate the attachments will **need to support MIME envelope**.

Whenever we have a cXML with attachments CIG will create a MIME envelope with the following characteristics

Payload will contain Content-Type: text/xml

Payload will be transferred (Content-Transfer-Encoding) in 7 bit when available or base64 if the payload contains none 8bit characters. More information on <https://en.wikipedia.org/wiki/MIME#Content-Transfer-Encoding>

*If supplier chooses not to integrate and consume the attachment of PO, attachment will be available on the Portal for download*

### 6.2. Return Ship Notice

Grundfos supports Return Ship Notices. Supported methods of providing them are:

- cXML integration
- Portal

Is ASN mandatory ?	Return PO
ASN mandatory or optional	Optional – In case of Scrapped materials there is not ASN sent back to the supplier

ASN Types Supported	ASN Types NOT Supported
Full ASN	
Partial ASN for a part of a PO	
Partial ASN for a part of a quantity of a line	
Summary ASN (one ASN that covers multiple Grundfos PO)	
Update ASN	
Delete ASN	

Fields and Attributes	Comments Return PO
Ship Notice ID	Mandatory
Ship Notice Date is mandatory	Mandatory
Delivery date	Yes
Actual shipping date	Mandatory
Reference of the number of the Grundfos Purchase Order	Mandatory
Reference of the number of the line from the Grundfos Purchase Order	Mandatory
Comments header or line	Optional
Unit of measure	Mandatory
Unit price	Optional
Item Description	Yes
Supplier and Buyer Part Ids changed or additions (versus the Purchase Order)	No – they will be the same as the ones in the PO Please note that free text Pos / Lines are also in scope of the project. In the case of free text Pos/lines the Grundfos Part ID is NOT provided

## 7. Supplemental Documentation

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This document contains Grundfos specific information regarding transaction requirements. Information in this document does **NOT** cover the complete technical aspects of integrating with the SAP Business Network. Below are two sections for supplemental documentation to be used with this document for cXML transaction formats. Only refer to the section that pertains to the format your organization with be sending/receiving from the SAP Business Network (cXML).

### **cXML Section for Supplemental Documentation**

New cXML supplier to SAP Business Network must:

1. Support a DTD (document type definition) validation tool internally and download the document type definitions (DTD's) for all supported transactions.
2. Support HTTPS protocol. SAP Business Network supports HTTPS (not HTTP) only for cXML transactions.
3. Review the cXML Solutions Guide and cXML User Guides.

### **cXML Document Type Definitions (DTD's):**

- <http://cxml.org> Download InvoiceDetail.zip for the InvoiceDetailRequest.dtd.
- <http://cxml.org> Download cXML.DTD for the ProductActivityMessage, ProductReplenishmentMessage, OrderRequest,
- <http://cxml.org> Download Fulfill.dtd for ConfirmationRequest, ShipNoticeRequest, ReceiptRequest

**Recommended Resources:** [SAP Ariba cXML Solutions Guide](#) and [SAP Ariba cXML Reference guide](#)  
May also be downloaded via login to your supplier account (<https://supplier.ariba.com>) on the SAP Business Network :

1. Click the 'Help' link in the upper right-hand section of the page.
2. Select 'Help Center' from the drop-down menu.
3. Enter Search... keywords or full document name.
4. Click on the pdf document name to open and download.

## 8. SAP Business Network Support Information

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Supplier Integration (SI) support is available to Grundfos suppliers. SI support is available during the test phase and two weeks post go live with Grundfos, or until the first production transactions are exchanged. After that period, suppliers must leverage SAP Ariba Technical Support for any production issues. To contact SI support, send an email to [askaribatech@ariba.com](mailto:askaribatech@ariba.com). Be sure to list Grundfos in the subject line of the email.

Depending on your transaction volume across all Buyers on the SAP Business Network you will be automatically subscribed to a Supplier Membership Program Subscription. These subscriptions provide your organization access to many premium features and services that are exclusively available to members at these levels. The Premier, Enterprise, and Enterprise Plus levels provide ongoing technical electronic document support. To find out more go to:

[http://www.ariba.com/assets/uploads/documents/Datasheets/SMP\\_Subscription\\_Datasheet.pdf](http://www.ariba.com/assets/uploads/documents/Datasheets/SMP_Subscription_Datasheet.pdf).

To find out your Program Subscription, log on to <https://supplier.ariba.com>, click the Property Navigator toolbar on the upper right corner of the page and select **Service Subscriptions** in the drop-down box.

**Until subscribed to one of SAP Ariba's support programs**, limited assistance regarding account registration, access and configuration is available from SAP Business Network:

**By Web:**

If you can log into your SAP Business Network Account	If you cannot log into your account
<ul style="list-style-type: none"><li>• Login at <a href="http://supplier.ariba.com">http://supplier.ariba.com</a></li><li>• Once logged in, click on the 'Help' link located on the upper right hand side of the page and choose <i>Help Center</i>.</li><li>• Select Support located in the top right hand side of the page.</li><li>• Options in the bottom right hand side of the page are Live Chat or By Phone.</li><li>• An Online Service Request can also be submitted by selecting the "Email SAP Ariba Customer Support" button in the top center of the page.</li></ul>	<ul style="list-style-type: none"><li>• Go to <a href="http://supplier.ariba.com">http://supplier.ariba.com</a></li><li>• For login issues select the "Forgot Username" or "Forgot Password" links near the top of the page.</li><li>• Fill out the web form and select the <i>Submit</i> button.</li></ul>

[www.sap.com/contactsap](http://www.sap.com/contactsap)

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