

## 制造商物料管理流程

### 业务场景:

由于存在同一部件由不同供应商提供的业务，因此要求系统能够支持如下典型的业务场景。

1. 客户指定供应商：客户指定某件产品中包含由某供应商提供的部件，如生产空调时，指定使用宝钢的钢板、三洋的压缩机；
2. 生产过程中的互换：生产某种空调时，正常情况使用国产件，但当生产发料时，发现国产件不够时，可以使用进口件；
3. 采购过程中的替换：想某供应商（贸易商）采购压缩机时，指定制造商为 A，但当供应商反馈该制造商的压缩机无库存时，则采购另外一家制造商 B 的压缩机；

### 非库存管理的 MPN VS 库存管理的 MPN

区别	非库存管理的 MPN 功能	库存管理的 MPN 功能
适用版本	ERP 基本功能	需激活针对离散行业的 DIMP 功能增强包
物料差异	制造商物料仅有基本视图和采购视图，该物料是不做库存管理的	制造商物料就是一个正常的物料号码，做库存管理
业务差别	制造商物料号仅用于采购模块	和正常物料一样，应用于库存管理，采购管理，生产管理，销售管理等

### 非库存管理的 MPN:

典型业务场景:

1. 向同一供应商采购同一种物料，但是存在多家制造商，不同制造商的价格可能差异；
2. 向同一供应商采购同一种物料，但是存在三家或更多制造商，不同制造商的质量可能差异，我们只允许向其中的两家进行采购，并且不仅如此，我们还希望生产订单发料时，这两家制造商提供的同一种物料不能在同一张生产订单中进行混用。
3. 向同一供应商采购同一种物料，但是存在两家制造商，不同制造商的质量、价格可能有差异，也可能无差异，我们按照配额进行采购，向两家制造商各采购 50% 的量。

假设某原产料向一个供应商采购，但是制造商有两个，不同的制造商价格不同，并针对制造商设置相应的配额，同时在原材料的批次中记录制造商信息以便于跟踪。

系统实现:

## 1. Create Normal Material Master Data

Transaction Code: MM01

P/N: PH\_MPN\_01

The screenshot displays the SAP MM01 transaction interface for 'Change Material PH\_MPN\_01 (Raw materials)'. The interface is organized into several sections:

- Material and Plant:** Material PH\_MPN\_01, MPN Raw Materials, Plant 1000, Werk Hamburg.
- General Data:**
  - Base Unit of Measure: EA, each
  - Order Unit: (empty), Var. OUn: (empty)
  - Purchasing Group: 000
  - Material Group: 00213
  - Plant-sp.matl status: (empty)
  - Valid from: (empty)
  - Tax ind. f. material: (empty)
  - Qual.f.FreeGoodsDis.: (empty)
  - Material freight grp: (empty)
  - Autom. PO: (empty)
  - OB Management: (empty)
  - OB ref. matrial: (empty)
  - Batch management:
- Purchasing values:**
  - Purchasing value key: (empty)
  - Shipping Instr.: (empty)
  - 1st Rem./Exped.: 0 days
  - Underdel. Tolerance: 0,0 percent
  - 2nd Reminder/Exped.: 0 days
  - Overdeliv. Tolerance: 0,0 percent
  - 3rd Reminder/Exped.: 0 days
  - Min. Del. Qty in %: 0,0 percent
  - StdValueDelivDateVar: 0 days
  - Unltd Overdelivery:
  - Acknowledgment Reqd:
- Other data / manufacturer data:**
  - GR Processing Time: (empty) days
  - Post to insp. stock:
  - Critical Part:
  - Quota arr. usage: (empty)
  - Source list:
  - JIT Sched. Indicator:
  - Mfr Part Profile: 2000 (highlighted with a red box)
  - Mfr Part Number: (empty)
  - Manufact.: (empty)

## 2. Create MPN Master Data

Transaction Code: MM01

Manufacturing P/N: M001\_PH\_MPN\_01

Manufacturing P/N: M001\_PH\_MPN\_02

### Change Material M001\_PH\_MPN\_01 (Purchasing, Manufacturer Part)

Descriptions Views processed Organizational levels Check screen data

Material

Language	Material Description
EN	M001_PH_MPN_01
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Delete line Entry 1 of 1

Manufacturer parts

Int. material number

Mfr Part Number  Manufacturer

General data

Material Group  Var. Order Unit

X-plant matl status  Valid from

Purchasing values

Purchasing value key

1st Rem./Exped.	0 days	Shipping Instr.	
2nd Reminder/Exped.	0 days	Underdel. Tolerance	0,0 percent
3rd Reminder/Exped.	0 days	Overdeliv. Tolerance	0,0 percent
StdValueDelivDateVar	0 days	Min. Del. Qty in %	0,0 percent

Unltd Overdelivery  Acknowledgment Reqd

### Change Material M001\_PH\_MPN\_02 (Purchasing, Manufacturer Part)

Descriptions Views processed Organizational levels Check screen data

Material

Language	Material Description
EN	M001_PH_MPN_02
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Delete line Entry 1 of 1

Manufacturer parts

Int. material number

Mfr Part Number  Manufacturer

General data

Material Group  Var. Order Unit

X-plant matl status  Valid from

Purchasing values

Purchasing value key

1st Rem./Exped.	0 days	Shipping Instr.	
2nd Reminder/Exped.	0 days	Underdel. Tolerance	0,0 percent
3rd Reminder/Exped.	0 days	Overdeliv. Tolerance	0,0 percent
StdValueDelivDateVar	0 days	Min. Del. Qty in %	0,0 percent

Unltd Overdelivery  Acknowledgment Reqd

### 3. Create Purchase info record

Transaction Code: ME11

**Change Info Record: Purch. Organization Data 1**

General Data    Conditions    Texts

Info Record    5300006250   

Vendor    T001    日立

Material    M001\_PH\_MPN\_01    M001\_PH\_MPN\_01

Material Group    0001

Purchasing Org.    1000    Plant    1000    Standard

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**Control**

Pl. Deliv. Time    5    Days    Tol. Underdl.     %     No MText

Purch. Group    000    Tol. Overdl.     %     Ackn. Rqd

Standard Qty    1    EA     Unlimited    Conf. Ctrl   

Minimum Qty        EA     GR-Bsd IV    Tax Code    1I

Rem. Shelf Life        D     No ERS

Shippg Instr.   

Max. Quantity        EA    Procedure   

Rndg Prof.        UoM Group   

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**Conditions**

Net Price     100    EUR    /    1    EA    Valid to   

Effective Price     0,00    EUR    /    1    EA     No Cash Disc.

Qty Conv.    1    EA    <->    1    EA    Cond. Grp   

Pr. Date Cat.    1    Purchase Order

Incoterms   

**Change Info Record: Purch. Organization Data 1**

General Data    Conditions    Texts

Info Record    5300006251   

Vendor    T001    日立

Material    M001\_PH\_MPN\_02    M001\_PH\_MPN\_02

Material Group    0001

Purchasing Org.    1000    Plant    1000    Standard

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**Control**

Pl. Deliv. Time    5    Days    Tol. Underdl.     %     No MText

Purch. Group    000    Tol. Overdl.     %     Ackn. Rqd

Standard Qty    1    EA     Unlimited    Conf. Ctrl   

Minimum Qty        EA     GR-Bsd IV    Tax Code   

Rem. Shelf Life        D     No ERS

Shippg Instr.   

Max. Quantity        EA    Procedure   

Rndg Prof.        UoM Group   

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**Conditions**

Net Price     105    EUR    /    1    EA    Valid to   

Effective Price     0,00    EUR    /    1    EA     No Cash Disc.

Qty Conv.    1    EA    <->    1    EA    Cond. Grp   

Pr. Date Cat.        No Control

Incoterms

#### 4. Create Quota

Transaction Code: MEQ1

**Maintain Quota Arrangement: Overview of Quota Arr. Items 124**

New Entries Header Next Overview

Material: PH\_MPN\_01 MPN Raw Materials  
 Plant: 1000 Werk Hamburg  
 Quota Arr.: 124 Base Unit: EA  
 Valid from: 26.06.2018 Valid to: 26.06.2019  
 Minimum Qty: 100,000  
 Created by: I302535 Created on: 26.06.2018

QAI	P	S	Vendor	PPI	PVer	Qu...	In %	Allocated Qty	Maximum Quantity	Quota Base Qty	Max. Lot Size	Min. Lot Size	RPro	1x	Max. Rel. Qty	N...	P	Pr	MPN Mat.
1	F					30	30,0	0,000						<input type="checkbox"/>					M001_PH_MPN_01
2	F					70	70,0	0,000						<input type="checkbox"/>					M001_PH_MPN_02

Manufacturing P/N: M001\_PH\_MPN\_01 30%

Manufacturing P/N: M001\_PH\_MPN\_02 70%

#### 5. Create Purchase Order 4500019607

Transaction Code: ME21N

**Create Purchase Order**

Document Overview On Hold Print Preview Messages Personal Setting

NB Standard PO Vendor: T001 日立 Doc. date: 26.06.2018

S...	Item	A	I	Material	Short Text	PO Quantity	O...	C Deliv. Date	Net Price	Curr...	Per	O...	Matl Group	Plnt	Stor. Location
	10			M001_PH_MPN...	M001_PH_MPN_01	1	EA	D 02.07.2018	100,00	EUR	1	EA	0001	Werk Hamburg	Materiallager
	20			M001_PH_MPN...	M001_PH_MPN_02	1	EA	D 02.07.2018	105,00	EUR	1	EA	0001	Werk Hamburg	Materiallager
										EUR					
										EUR					
										EUR					
										EUR					
										EUR					
										EUR					
										EUR					

Default Values Addl Planning

Item: 2 [ 20 ] PH\_MPN\_01 , M001\_PH\_MPN\_02

Material Data Quantities/Weights Delivery Schedule Delivery Invoice Conditions Account Assignment Texts Delivery Address Confirmations

Material group: 0001 Revision Level:   
 Vendor mat. no.:  EAN/UPC:   
 Vendor sub-range:   
 Batch:  Vendor Batch:  InfoUpdate:   
 MPN material: M001\_PH\_MPN\_02 M001\_PH\_MPN\_02  
 Mfr Part Number: M001\_PH\_MPN\_02 Manufacturer: PH\_M002  
 Mfr Part Profile: 2000 MPN required for the purchase order

## 6. Post Goods Receipt

Transaction Code: MIGO

**Goods Receipt Purchase Order 4500019607 - Kevin Cao**

Hide Overview | Hold | Check | Post | Help

A01 Goods Receipt | R01 Purchase Order | Plant | GR goods receipt | 101

My Documents

- Purchase Orders
  - 4500019607
  - 4500019606
  - 4500019605
  - 4500019604
  - 4500019603
  - 4500019602
  - 4500019601
- Orders
  - 60003226
  - 60003227
  - 60003225
- Reservations
- Blank
- Material Documents
  - 42000019
  - 42000018
  - 42000017
  - 42000016
  - 42000015
  - 42000014
  - 42000013
  - 42000012
  - 42000011
- Held Data
  - Blank

General | Vendor | Import | Scrapping

Document Date: 26.06.2018 | Delivery Note: | Vendor: 日立  
 Posting Date: 26.06.2018 | Bill of Lading: | HeaderText: |  
 1 Individual Slip | GR/GI Slip No.:

Line	St...	Mat. Short Text	OK	Qty in UnE	E... S...	SLoc	Batch	Valuation ...	M...	D	Stock Type	Plnt	S...	Cust...
1	☉	M001_PH_MPN_01	☑	1	EA	Materiallager	0000000369			101 +	Unrestrict...	Werk Hamb...		
2	☉	M001_PH_MPN_02	☑	1	EA	Materiallager	0000000370			101 +	Unrestrict...	Werk Hamb...		

Delete | Contents

Material | Quantity | Where | Purchase Order Data | Partner | Batch | Account Assignment | Import

Batch: 0000000370 | Classification  
 Vendor Batch: |  
 Date of Manufacture: |  
 SLED/BBD: |

Item OK | Line: 2

**Stock Overview: Basic List**

Selection

Material: PH\_MPN\_01 | MPN Raw Materials  
 Material Type: ROH | Raw materials  
 Unit of Measure: EA | Base Unit of Measure: EA

Stock Overview

Detailed Display

Client/Company Code/Plant/Storage Location/Batch/Special Stock	Unrestricted use	Qual. inspection	Reserved	Rcpt reservation	On-Order Stock	Consgt ...
Full	2,000					
1000 IDES AG	2,000					
1000 Werk Hamburg	2,000					
0001 Materiallager	2,000					
• 0000000369	1,000					
• 0000000370	1,000					

制造商物料仅用于采购中，当采购订单收货时，仍然针对自有物料做批次管理，收货后，产生批次 369 和 370。

## 系统配置:

### 1. Maintain MPN Profile

Transaction Code: OMPN

**Change View "Maintenance of Profile for Manufacturer Part Processing":**

New Entries      

MPN Profile

Profile Descript.

Order Text for MPN Material

MPN Mandatory

Change in MPN

Info Records for MPN

QM Processing for MPN

AMPL Management

Updating of LIS

Checkg. Rule: Manuf.

Subitem Price Determination

#### AMPL Management (Approved Manufacturer Parts List Management)

如果该字段被标记上，则所有制造商都需要被批准，采购部门才能够向制造商下达采购订单，如果未被批准，系统会报错。

**Create Purchase Order**

Document Overview On | Hold | Print Preview | Messages | Personal Setting

NB Standard PO | Vendor: T001 日立 | Doc. date: 27.06.2018

**Header**

S..	Itm	O...	C	Delv. Date	Net Price	Curr...	Per	O...	Mat Group	Plnt	Stor. Location	Batch	Reqm
10		EA	D	02.07.2018	100,00	EUR	1	EA	0001	Werk Hamburg			
						EUR							
						EUR							

Item: 1 [ 10 ] PH\_MPN\_01, M001\_PH\_MPN\_01

Material Data | Quantities/Weights | Delivery Schedule | Delivery | Invoice | Conditions | Account Assignment | Text

Qty: 1 EA | Net: 100,00 EUR

**Pricing Elements**

N..	CnTy	Name	Amount	Crcy	per	U...	Condition value	Curr.	Status	Num...	OU	CCon.
		GMP	100,00	EUR	1	EA	100,00	EUR			1 EA	
		total pur price	100,00	EUR	1	EA	100,00	EUR			1 EA	
		discharge total pric	0,00	EUR	1	EA	0,00	EUR			1 EA	

No assignments maintained for MPN material M001\_PH\_MPN\_01

## 2. Maintain Approved Manufacturer Parts List

Transaction Code: MP01

**Maintain Approved Manufacturer Parts List: Initial Screen**

Int. material no. PH\_MPN\_01 | MPN Raw Materials

MPN Material	Manufactu...	Plant	Valid from	Valid to	Revi...	Bloc...	Deletion ind.
M001_PH_MPN_01	PH_M001		27.06.2018	27.06.2018			<input type="checkbox"/>
<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input type="checkbox"/>
<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input type="checkbox"/>

## 库存管理的 MPN:

不同制造商物料，如果有着相同的属性（外观相同、装配无差异、性能相同），则可以在采购过程、库存管理、MRP 和可用性检查中进行替换、替代使用。

业务场景 1: 完全可互换的业务场景:

某公司存在四家生产工厂，分布在上海、北京、广州、成都，每家工厂在 SAP 中对应的工厂代码和生产的主要产品，具体如下。

某重要零部件共有五家供应商（对应七个制造商），分布在七个城市（上海、苏州、北京、广州、深圳、天津和成都），这七个物料符合 FFF class 的定义，也就是说它们在外观、装配、性能上相同，可以发生互相替换。

不同工厂的业务情况如下:

1. 上海、苏州两家供应商供应上海工厂，根据不同产品确定优先使用的供应商;

方案: 上海工厂采用库存管理的制造商物料，在产品的 BOM 中指定制造商料号，在采购、生产过程中根据需要进行替代，在 MRP 运行时，不进行自动替代，不启用 MPN-MRP SET 功能。

2. 广州、深圳两家供应商供应广州工厂，优先是广州供应商，也就是 MRP 运行时优先考虑广州供应商，上海、苏州的两家供应商在部分情况下也会供应给广州工厂;

方案: 广州工厂启用库存管理的制造商物料，且启用 MPN-MRP SET 集合，在广州工厂下设置物料号 ZROH3 为优先物料。

3. 成都、苏州两家供应商供应成都工厂，优先是成都的供应商，但上海、苏州供应商部分情况下也会供应成都工厂;

方案: 广州工厂启用库存管理的制造商物料，且启用 MPN-MRP SET 集合，在广州工厂下设置物料号 ZROH3 为优先物料。

4. 北京、天津两家供应商供应北京工厂，两个供应商按照 50%的比例分享采购配额;

业务 1:

1. Create Manufacturer Master Data

Transaction Code: XK01

PH\_M001

PH\_M002

 **Display Vendor: Address**

  

Vendor

  Preview 

**Name**

Title

Name

**Search Terms**

Search term 1/2

**Street Address**

Street/House number

Postal Code/City

Country  Germany

 **Display Vendor: Address**

  

Vendor

  Preview 

**Name**

Title

Name

**Search Terms**

Search term 1/2

**Street Address**

Street/House number

Postal Code/City

Country  Germany

## 2. Assign Manufacturer to Vendor

Transaction Code: XK02

Vendor: PH\_VN001

**Change Vendor: Partner functions**

Alternative data Partner Delete line

Vendor  PH Supplier 1  
Purchasing Org.  Einkauf Deutschland

Partner Functions				
P..	Name	Number	Name	D..
OA	Ordering Address	PH_VN001	PH Supplier 1	<input type="checkbox"/>
MP	Manufacturing plant	PH_M001	PH Manufacture 1	<input type="checkbox"/>
MP	Manufacturing plant	PH_M002	PH Manufacture 2	<input type="checkbox"/>
VN	Vendor	PH_VN001	PH Supplier 1	<input type="checkbox"/>
IP	Invoice presented by	PH_VN001	PH Supplier 1	<input type="checkbox"/>

## 3. Create MPN Materials

Transaction Code: MM01

ZROH1

**Create Material (Initial Screen)**

Select view(s) Organizational levels Data

Material   
Industry Sector   
Material Type   
Change Number   
Copy from...  
Material

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