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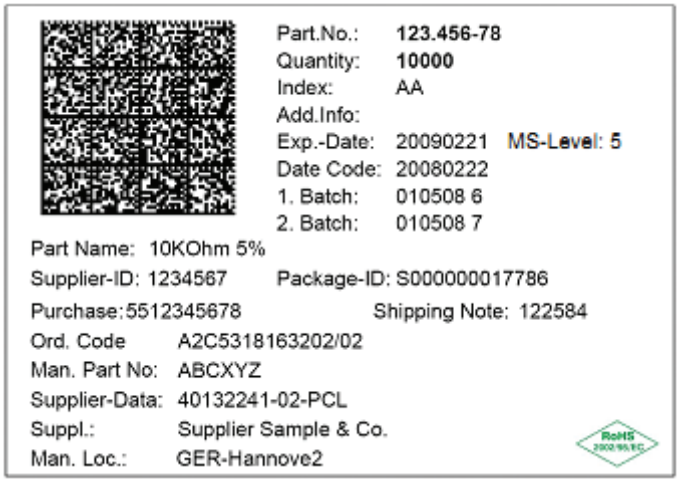
Requirements on Marking of Goods and Accompanying Information for Purchased Production Parts (MAT-Label, Version 2.5)



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Change History

15.10.2015 First release - by Matevž Rihtrašič

12.08.2020 Correction Tanja Kramar

List of Abbreveations

ADC	Automatic Data Capture
ANSI	American National Standards Institute
BC128	Bar Code according to ISO/IEC 15417 (Abbrev. = BC 128)
BOM	Bill of Material
CCD	Charge-coupled Device
DIN	Deutsches Institut für Normung e.V. (German Institute for Standardization)
DMC	Data Matrix Code
DUNS	Data Universal Numbering System
EK	European Commission
ECC	Error Correction Code
ESDS	Electrostatic Sensitive Devices
GTL	Global Transport Label
IEC	International Electrotechnical Commission
IPC	Association Connecting Electronics Industries – formerly known as the Institute for Interconnecting and Packaging Electronic Circuits
ISO	International Organization for Standardization
JEDEC	Solid State Technology Association - formerly known as the Joint Electron Device Engineering Council
LED	Light Emitting Diode
ODETTE	Organization for Data Exchange by Tele Transmission in Europe
PDF	Portable Data File 417 according to ISO/IEC 15438
RoHS	Restriction of the use of certain hazardous substances in electrical and electronic equipment
VDA	Verband der Automobilindustrie e.V. (German Association of the Automotive Industry)

List of terms

Consumables	Material of the BOM which is used in the product or process beside the electrical and mechanical components, like solder paste, glue, lacquer, sealing material

Related Documents

ANSI MH10.8.2	Data Identifier and Application Identifier Standard
2002/95/ES	Restriction of the use of certain hazardous substances in electrical and electronic equipment; EU-RoHS; (non-automotive related)
IPC/JEDEC J-STD-020	Moisture/Reflow Sensitivity Classification for Non-hermetic Solid State Surface Mount Devices
ISO 780	Packaging – Pictorial Marking for Handling of Goods
ISO 3166-1	Codes for the representation of names of countries and their subdivisions - Part 1: Country codes (3 Alpha Character Country-Code)
ISO/IEC 15417	Information technology – Automatic identification and data capture techniques – Code 128 bar code symbology specification
ISO/IEC 15434	Information technology -- Automatic identification and data capture techniques – Syntax for high-capacity ADC media
ISO/IEC 16022	Information technology – Automatic identification and data capture techniques – Data Matrix bar code symbology specification
UN/ECE Rec. 20	Recommendation No.20 of WP.4: Codes for units of measure used in international trade
VDA 4902	Warenanhänger (barcode-fähig)[1]
VDA	4922 Speditions-Auftrag[1]
HN67600	Requirements on Marking of Goods and Accompanying Information for Purchased Production Parts (MAT-Label, Version 2.5)

1 PURPOSE AND SCOPE

The automotive industry places increasing demands on traceability along the whole supply chain. To ensure this traceability, the material flow and information flow from suppliers to customers have to be aligned. This can be achieved by a unique material label on the smallest package unit containing a clearly defined set of traceability information. Up to now, however, there is no common industry standard for such a label.
The defined standard material label "MAT-Label" is based on the existing Siemens VDO label according to SN 55228-2. The MAT-Label is a complement to existing labels such as VDA 4902, Odette and GTL. These existing logistics labels are considered and referenced.

2 VALIDITY AND TRANSITION PERIOD

The following document is valid for Domel. It can also be applied by other companies. Upon further notice existing company specific labelling specifications are valid.

3 RELEASE PROCESS FOR THE DATA MATRIX CODE DMC-CODE AND MAT-Label2

If the DMC-Code on the MAT-Label (package label of a supplier) was approved by a customer[3] plant and the approval is based on the requirements listed in the following, then the approval is also valid for all other plants of the customer.

The label has to be used immediately for all receiving plants which demand the label as soon as they have been approved.

One sample has to be sent from each logistic centre of the supplier to the releasing plant of the customer.

The approval can be differentiated in a general and a plant specific release. The general approval is valid for all customer plants which will use a MAT-Label for packaging identification. Plant specific data contents have to be verified by each individual plant (e.g. data field "Add. Part Info", respective Supplier ID).

The data content of customer-defined fields can be different from plant to plant.

The original approval of the DMC-Code on the shipping note and the approval of the MAT-Label have to be kept carefully and presented upon request.

4 MARKING OF A UNIT LOAD

4.1 MARKING OF A UNIT LOAD AS THE SMALLEST PACKAGE UNIT

If the unit load (shipping container) should at the same time represent the smallest package unit, then the approval of the particular receiving plant has to be requested in general depending on the Customer Part Number / drawing number.

If the approval is given, then a MAT-Label in master version will become necessary. The layout of the MAT-Label has to be selected in such a way that the Customer Part Number and amount can also clearly be read from distance. If this is not feasible, an additional ODETTE-Label (also VDA or GALIA) will become necessary. In this case, the MAT-Label has to be applied on the ODETTE-Label to the upper right.

4.2 PART PACKAGING (SMALLEST PACKAGE UNIT)

In general, the smallest package does not contain any additional sub-packaging. In the case of a Dry Pack, the protective packaging or the protective bag enclose the smallest package unit. Each packaging has to get one MAT label. For example, only one reel per Dry Pack is allowed, as also noted in the following chapter.

Other definitions pertaining to part packaging have to be coordinated with the receiving plant depending on the Customer Part Number / drawing number.

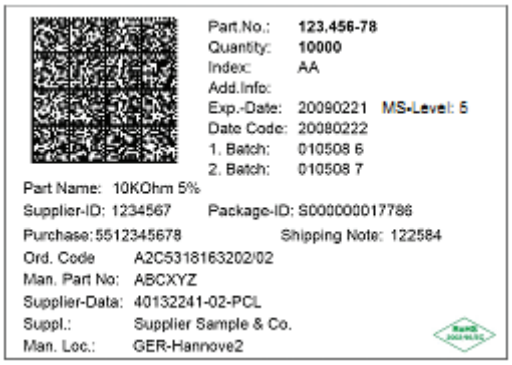


Figure 1: Example of a MAT-Label (size of image reduced)

4.3 MARKING OF DRY PACK PACKAGING

For Dry Packs the MAT-Label has to be peelable (removable) in one piece without partial damage.

If the MAT-Label has already been applied to the reel inside of the Dry Pack, then the type of label has to be permanently on the reel and Dry Pack (e.g. in the case of contract manufacturing).

Both MAT-Labels have to be identical, including the Package-ID.

4.4 ADDITIONAL REQUIREMENTS

The following markings may also become necessary according to specific circumstances in addition to the above requirements:

- When packaging electronic parts and components, it is mandatory to apply the appropriate ESDS-Symbol on the smallest package unit.

Figure 2: Example of a basic ESDS symbol: IEC 60417 Symbol Number 5134

- Special marking for RoHS compliance:
  If the part complies to 2002/95/EC a symbol for RoHS compliance shall be printed on the MAT-Label.

Figure 3: Example of a symbol for RoHS compliance
If the printing of the RoHS symbol is not possible, marking with “RoHS“ is also allowed.

- All current Listing and Classification Marks can be found through this link. The Aartwork for each mark is available for instant download. In addition to the mark artwork, you will find information about ordering, promoting and using marks and labels properly.

Figure 4: Example of a symbol for UL listed or UL classified material

5 MAT-Label REQUIREMENTS

This chapter describes the universally valid aspects of the MAT-Label:

- Label size and layout (recommendation for the print-out style sheet).
- Attachment on the smallest package unit / attachment location.
- Information content.
- Plain text - The customer defines in the print-out style sheet which data fields are to be included as plain text.

5.1 SIZE AND LAYOUT

The MAT-Label consists of black printing on a white label. Valid layouts are defined and listed in Appendix A.
The size of the MAT-Label can be chosen by the supplier considering the size of the smallest package unit. Recommendations are shown in Appendix A.

- Compare the planned size of the MAT-Label with the smallest free space on the part packaging (smallest packaging unit) to avoid using too large labels.
- To ensure there is enough free space for the code, its quiet zone and for the plain text, create a layout with maximum filled data fields. For customer fields consider the maximum field length as specified. For your own (supplier) fields, consider the maximum field length within your company now and in the future.
  Example: If the Manufacturer Part Number has a maximum of 10 characters in all cases, then it is not mandatory to reserve space for 35 characters.
- A border line around the label is not allowed. The pictures in Appendix A show the outline of the label only.
- Sufficient free space around the printing (not to close to the edges) has to be maintained. Consider possible paper handling and printer tolerances in this regard.
- The MAT-Label samples in Appendix A are shown with real data. Spaces between data fields can occur, because the data do not occupy the maximal field length.
- The customer part number and the quantity have to be highlighted against the other information by using larger or bold type.
- All data fields have to be adjusted in such a way that there is enough space between each field for the maximum data length. (Batch-No. #1 and Batch-No. #2).

5.2 ATTACHMENT, ATTACHMENT POSITION

The supplier has to make sure that the MAT-Label is easily and completely readable, does not cover up any other supplier-created data and is safely positioned on the packaging and against damage during transportation and opening at the customer. Attachment with a wire is not allowed.

- The MAT-Label has to be attached permanently on the smallest package unit and covering box where applicable and peelable on Dry Packs, see Chapter 4.3.

- Reusable Containers (Durable Systems)
  The MAT-Label shall not be attached permanently and over the entire surface. The attachment of labels with bonding dots is permissible. The label and its attachment (bonding dots) have to be removable without residue.

5.3 INFORMATION CONTENT

The following table lists the data fields which the supplier has to provide on the MAT-Label. It defines the format, length and data identifier.

The data fields are explained in detail afterwards.

The DMC-Code on the MAT-Label has to contain all data fields in the order represented by the column number.

The data is strictly distinguished between that for the manufacturer, who actually produces the part, and the supplier, who delivers the part to the customer.

The Batch-Number, Quantity and Expiration Date on the MAT-Label has to be exactly the same as the Batch-Number and Expiration Date printed on the manufacturer part of the label if present.

Please note that the data content of the respective fields can be different from plant to plant.

Nr.	Data field	Definition / Description	Data Identifier	Length	Format	Example	Machine-readable Code DMC code ECC200	Printed text on the label
			Label Information					
1.	Label Version	The revision level is a fixed entry and serves for the recognition of the label or its version.	12S	4	N (''0002")	0002 (Fixed data)	yes	no
			Part Information					
2.	Customer Part Number[6]	Part number of the customer; e.g. the 8-digit SAP number.	P	Max. 18	A/N	718.187-04 A2C53216419	yes	yes (high-lighted)
3.	Manufacturer Part Number	Internal manufacturer part number.	1P	Max. 35	A/N	SL105C103MAA-S	yes	yes
4.	Ordering Code[6]	Code for the part which non-ambiguously can be used when ordering it. Compared to the "Manufacturer Part Number", the Ordering Code may contain more information, e.g. software version in the case of microcontrollers.	31P	Max. 35	A/N	SC441427CFNR2 A2C53216419/02	yes	yes
5.	Part Description	Clear-text description of the part (or part name), so that people who are not familiar with the manufacturer's naming conventions can understand what kind of component it is.	–	Max. 30	A/N	10 nF/50 V/Ker W204KLA	no	yes
6.	Manufacturer number	The manufacturer, e.g. DUNS-Nr., or mutually agreed manufacturer name.	12 V	Max. 13	A/N	123456789 AMD	yes	no
7.	Manufacturer Location	Name of the manufacturing location / locations.	10 V	Max. 20	A/N	DEU-Berlin CHN-BEJING	yes	yes
8.	Revision Level / index6	Revision status of the part.	2P	Max. 14	A/N	AA 01	yes	yes
9.	Additional Part Information	Used differently by each plant, flexible filled, e.g. brightness of the LEDs.	20 P	Max. 18	A/N		yes	yes
			More Part Information					
10.	Date of Manufacturing	Date of manufacturing is related to the last manufacturing process.	6D	8	YYYY/ MMDD	20080330	yes	yes
11.	Expiration Date	The expiration date of the part (as defined by the manufacturer and depending on the production date).	14D	8	YYYY/ MMDD	20080330	yes	yes
12.	RoHS	Indicator for RoHS compliance N: no RoHS Y: RoHS 0: not applicable	30P	1	A/N (upper case)	E	yes	Logo
13.	MS-level	Moisture Sensitivity Level according to IPC/JEDEC J-STD-020.	Z	Max. 2	A/N ''N'' if not applicable	5	yes	yes
			Logistic and Traceability Information					
14.	Purchase Order Number[6]	Order number assigned by the customer to identify a purchasing transaction.	K	Max. 18	A/N	753013	yes	yes
15.	Shipping Note Number	The shipping note number of the shipping note and MAT-Label must be the same.	16K	Max. 12	A/N	54003333	yes	yes
16.	Supplier Name (no real data field!)	The supplier name.	–	Max. 30			no	yes
17.	Supplier-ID (vendor number)[6]	The vendor number (of the customer) for the supplier. This has to be taken from the order.	V	Max. 10	A/N	884566	yes	yes
18.	Package-ID	The explicit, unique number for each single package. It has to be unique with regard to both supplier (vendor number) and package. It is always related to the smallest package unit. If possible, it is chronologically related to the production process (e.g. reel-ID).	3S	13	A/N	S123456789012 (first byte reserved for specifying single or master)	yes	yes
19.	Količina	Količina najmanjše pakirne enote.	Q	Najv. 18	12ISO3 za poravnavo na desno	10KGM020 (natisnjeno: 10,02)	da	da (poudarjeno)
20.	Števec sarž	ID sarže identificira število sarž (1 ali najv. 2 sarži na kolut).	1T	Najv. 17	A/N	750160429	da	da

19.	Quantity	Quantity of the smallest package unit.	Q	Max. 18	12ISO3 to be aligned to the right	10KGM020 (printed: 10,02)	yes	yes (high-lighted)
20.	Batch-Counter	Batch ID identifies the number of batches (1 or max. 2 batches per reel).	20T	1	N	1	yes	no
21.	Batch-No. #1	With this number the supplier has to be able to retroactively provide information about the batch (e.g. volume, production, delivery). A batch identification should be based on the same manufacturing conditions. If a manufacturing condition changes then the batch number should be changed too.	1T	Max. 17	A/N	750160429	yes	yes
22.	Batch-No. #2 B	Batch number for the second batch, if applicable.	2T	Max. 17	A/N	750160430	yes	yes
Other								
23.	Supplier Data	The supplier's own information that may be used by the supplier.	1Z	Max. 30	A/N		yes	no

[5] N = numerical, A/N = alphanumerical, D = day, M = month, Y = year

[6] In capital letters and the same as on the order

PLEASE NOTE

Additional barcodes on the label in the DC128 format might be necessary to be compatible with the existing equipment in the plants of the customer. If this is the case, the customer should describe this requirement in appended papers. Samples of labels with a barcode are given in the Appendix.

LABEL INFORMATION

1. Label Version

The label version is a fixed entry and serves for the recognition of the label and its version. The current label version described in this specification is 2, and the fixed entry of this data field is “0002”.

PART INFORMATION

2. Customer Part Number

Part number of the customer; e.g. the max. 18-digit SAP number. The format and design of the customer part number has to be the same as in the orderF. The customer part number and quantity have to be highlighted in bold.

3. Manufacturer Part Number

Part number under which the manufacturer identifies the part, and which is used for the release of the part by the customer.

4. Ordering Code

The ordering code is a mutually agreed code for the part which can be unambiguously used to order it. Compared to the "Manufacturer Part Number", the ordering code may contain more information, e.g. SC441427CFNR2, software version in case of microcontrollers, kind of packaging, etc.

5. Part Description

Description of the ordered part (or part name) using plain text.

6. Manufacturer Number

Explicit identification of the manufacturer by DUNS-No. If the DUNS-No. does not exist, the content of the field has to be mutually agreed between the customer and supplier.

7. Manufacturing Location

Identification of the manufacturing location (the location of the final testing of the component is preferred) as mutually defined between supplier and customer.

Example:

DEU-BERLIN (In case of only one location in town)

DEU-BERLIN1
DEU-BERLIN2 } (In case of two locations in town)

The field has a maximum of 20 digits and consists of the 3- Characters Country-Code ISO3166-1 ALPHA-3 [3 digits] + „-„ [1 digit] + Plant-Location [required digits] + Plant-Number [0 or 1 digits (if more than 1 plant)].

8. Revision Level / Index

Revision level of the part if applicable.

9. Additional Part Information

This field can be flexibly used for additional information about the part, e.g. for the brightness of LEDs. The content of this field has to be mutually agreed upon between the manufacturer (supplier) and the receiving customer plant.

10. Date of Manufacturing

The date of manufacturing (also called 'Date Code') as defined by the last manufacturing process.

YYYYMMDD
Definition / Date Format:
(Example: 20080330) Dots (separators) are not allowed as code content.

11. Expiration Date

The expiration date of the part is defined by the manufacturer (depending on the production date). This is the date the part may be kept until under the specified storage conditions (shelf life), and until this part has to be processed by the customer (e.g. soldered in case of electronic components).

YYYYMMDD
Definition / Date Format:
(Example: 20081031) Dots (separators) are not allowed as code content.

12. RoHS

In the DMC-Code, a "Y" means compliance with the current RoHS directives and an "N" means non-compliance. If RoHS is not applicable, the field entry is "0" (zero). In case the parts are RoHS compliant the RoHS symbol has to be printed onto the MAT-Label. If this is not possible the printing of "RoHS" is allowed.

13. MS-Level

If the part is moisture-sensitive, then the MS-Level (Moisture Sensitivity Level) has to be entered according to the industrial standard IPC/JEDEC J-STD-020 (see also 4.3.). If the part is not moisture-sensitive (e.g. mechanical parts), then the letter "N" has to be printed (for not moisture-sensitive).

LOGISTICS AND TRACEABILITY INFORMATION

14. Purchase Order Number

The purchase order number is assigned by the customer to identify a purchasing transaction. It has to be identical to the one on the Shipping Note.

15. Shipping Note Number

The shipping note number identifies the shipping. It has to be identical to the one on the Shipping Note.

16. Supplier Name

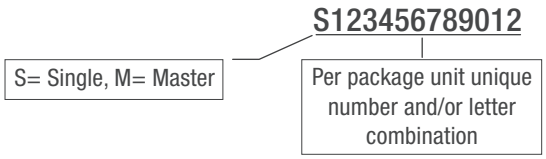
The supplier name will only be printed as plain text and is not part of the DMC-Code.

17. Supplier-ID (Vendor Number)

The vendor number under which the customer identifies the supplier. The SUPPLIER-ID has to be taken from the order. xxx.

18. Package-ID

The Package-ID is the unique number for the smallest package unit of each supplier, as characterised by the Supplier-ID. The Package-ID has to be defined by the supplier and has to be unique world-wide for each Supplier-ID. The Package-ID will only be used by the customer to distinguish the package units. The MAT-Label should be used for the smallest package unit according to definition. Therefore, the first character has to be an "S". If the MAT-Label is required for a unit load by the customer, the first character has to be an "M".
Primer ID embalaže:



The concatenated data fields Supplier-ID and Package-ID represent the unique trace code for the smallest package unit.
Examples in defined sequence:

$\mathbf{G}_S$V884566$\mathbf{G}_S$3S$_S$123456789012$\mathbf{G}_S$
@V884566@3SS123456789012@

19. Quantity

The quantity is the number of parts or the amount contained in the package unit. The format in the DMC-Code is 12ISO3, i.e. a maximum of 12 significant places and exactly three decimal places. For the significant digits do not use leading zeros. For the decimal places, use always exactly three decimal places and fill up with zeros in cases when there are less than three decimal places given in the amount.

ISO denotes the identifier for the measuring unit (e.g. pieces, litres, etc.) according to Recommendation No. 20 of WP.4 of the UN/ECE which is generally accepted for the use in Electronic Data Interchange (EDI) and supported by, among others, SAP.

The format used for the printed plain text should be 12,3 and given in the plain text measuring unit instead of the ISO Code. Separators (periods) can be added to make it easier to recognise thousands of places. If different formats for DMC-Code and printed information are technically not possible, then the quantity has to be printed in the same way as it is contained in the DMC-Code.

Excerpt from the UN/ECE Recommendation 20:

Measured Quantity	Measuring Unit	ISO Code
Number of Articles	Pieces	NAR
Mass	Kg	KGM
Mass	Metric Ton	TNE
Mass	Grams	GRM
Volume	Liters	LTR
Volume	Cubic meters	MTQ
Length	Meters	MTR
Length	Km	KMT

Examples:

Quantity	Printed plain text	2D-Code
12 kg	12 kg	12KGM000
12.03 kg	12.03 kg	12KGM030
3000	3000	3000NAR000

20. Batch-Counter

The batch-counter is the total number of batches in the smallest packaging unit. A maximum of two different batches are allowed in one smallest package unit.

Examples:
Package unit includes only one batch (e.g. Batch-Number: 010508 6).

Field name:	Data content:
Batch-Counter	1
1. Batch-No.:	010508 6
2. Batch-No.:	(empty)

The package unit includes two batches (e.g. Batch-Number 010508 6 and 010508 7).

Field name:	Data content:
Batch-Counter	2
1. Batch-No.:	010508 6
2. Batch-No.:	010508 7

21. Batch-No. #1

The data field Batch-No. #1 contains an identification code for the production batch of the part (batch number, lot number, trace code, date code …). With this number the supplier has to be able to retroactively provide all traceability information about the production batch (e.g. volume, production, delivery, half-finished goods used in the production, production machine(s), operator, …).

A batch identification should be based on same manufacturing conditions. If the conditions (machine, half-finished goods, operator, …) change the batch number should also change. Collective batches are not allowed.

22. Batch-No. #2

The data field Batch-No. #2 contains an identification code for the second production batch of the part (batch number, lot number, …) and has to be filled only when the Batch-Counter = 2

ADDITIONAL SUPPLIER INFORMATION

23. Supplier Data

The supplier can use this field if necessary.

5.4 REQUIREMENTS OF THE DMC-kode

Print Parameters

• Code type	DMC acc. to ISO/IEC 16022
• Failure correction	ECC 200
• Module width	0,25 mm (3 pike/mod.)
• Code size	A maximum of 80 x 80 modules corresponding to a maximum allowed amount of usable characters of 453, including control characters (the sum of all maximum field sizes exceeds the 80 x 80 module limit)
• Rest zone	A minimum of four modules (1 mm for 0.25 mm module width)

Label Material Properties

a) Non-removable label

• Face Material	White, reverse coated material
• Adhesive	Permanent adhesive adjusted to the material of the smallest package unit
• Recycling regulations have to be obeyed	

b) Peelable label

• Face Material	White, reverse coated material
• Adhesive	Removable adhesive adjusted to the material of the smallest package unit, residue free.
• Recycling regulations have to be obeyed	

Data contents and Data syntax based on ISO/IEC 15434

According to ISO/IEC 15434, the data matrix code is structured into data fields with separators. The content of each data field is described by a data identifier within each field. The data identifier precedes the data. No blanks are permissible between the data fields. Blanks are only permissible in the data fields if they are part of the information content or if they were provided to the supplier as stated in the order.

Data Content and Data Identifier

The previous table (see Table 5.3) lists the data, data length, format and data identifiers that have to be encrypted in the code. All fields are mandatory. All Data Identifiers have to be included, including in the case of an empty data field. Their sequence is defined in Table 5.3. The data syntax is generally based on ISO/IEC 15434. The symbols R_S, G_S and ${}^{E}O_T$ are in accordance with ASCII/ISO 646.

Due to technical compatibility, Bosch, Hella, Siemens I DT MC and Zolner AG, are requesting @ as trailer and separator (R_S, G_S and ${}^{E}O_T$). Continental AG also allows this as an exemption after clarification with the respective location. Every defined field has to be listed in the DMC by @ and the identifier, even if the field is empty.

Syntax with R_S, G_S and ${}^{E}O_T$:

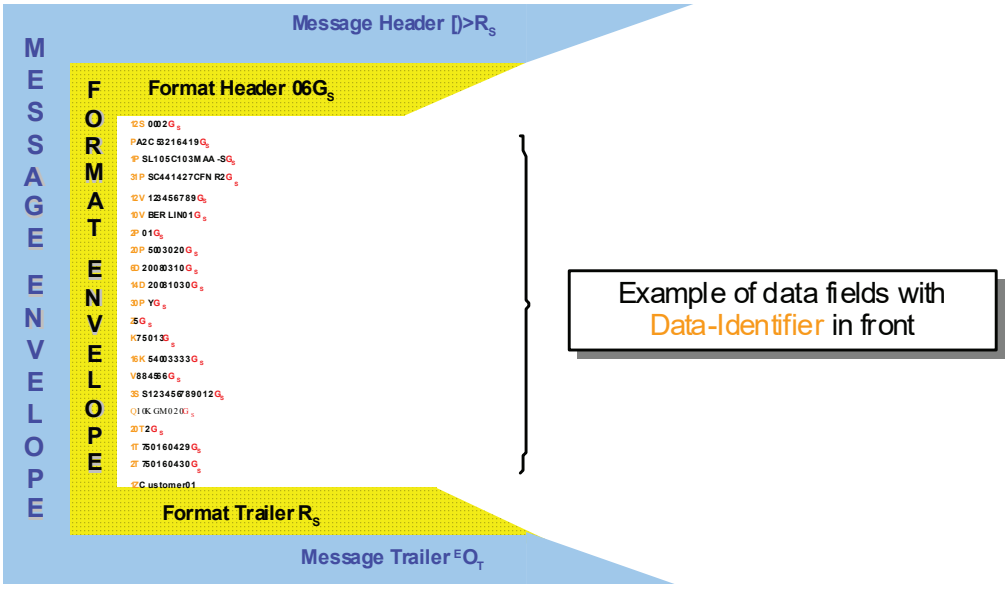
[)>**R**$_S$06**G**$_S$12S0002**G**$_S$PA2C53216419**G**$_S$1PSL105C103MAA-S
G$_S$31PSC441427CFNR2**G**$_S$12V123456789**G**$_S$10VBERLIN01**G**$_S$2P01**G**$_S$20P5003
020**G**$_S$6D20080310**G**$_S$14D20081030**G**$_S$30PY**G**$_S$Z5**G**$_S$K753013**G**$_S$16K54003333
G$_S$V884566**G**$_S$3SS123456789012**G**$_S$Q10KGM020**G**$_S$20T2**G**$_S$1T750160429**G**$_S$2T7
50160430**G**$_S$1ZCustomer01**R**$_S$**E**O_T

Syntax with @ instead of R_S, G_S and $^{E}O_T$:

[)>@06@12S0002@PA2C53216419@1PSL105C103MAA-S
@31PSC441427CFNR2@12V123456789@10VBERLIN01@2P01@20P5003
020@6D20080310@14D20081030@30PY@Z5@K753013@16K54003333
@V884566@3SS123456789012@Q10KGM020@20T2@1T750160429@2T7
50160430@1ZCustomer01@@

Exemplary data content for MAT-Label

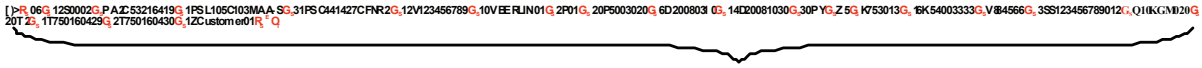
Data syntax according to ISO/IEC 15434 / Whole structure



5.5 SUMMARY OF THE DATA CONTENT

Exemplary data content for MAT-Label

Data flow for a fictitous example



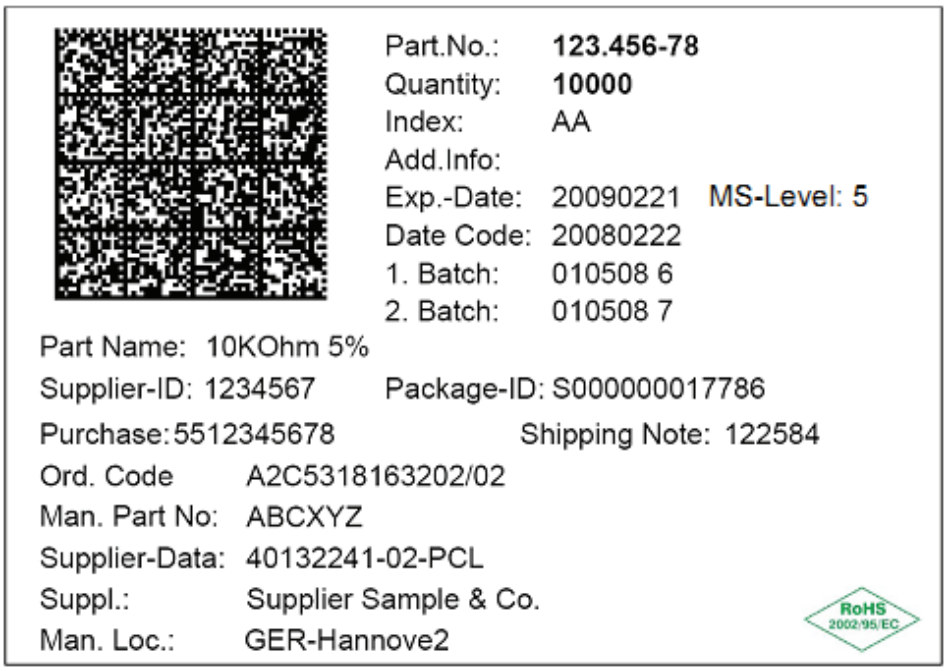
Part of the whole structure	Data Identifier	Data Content	Data Element Separator	Formated Data Content
Message Header				[)>RS
Format Header				06GS
Data Content	12S	0002	GS	12S0002GS
	P	A2C53216419	GS	PA2C53216419GS
	1P	SL105103MAA-S	GS	PSL105103MAA-SGS
	31P	SC44127CFNR2	GS	31PSC44127CFNR2GS
	12V	123456789	GS	12V123456789GS
	10V	BERLIN01	GS	10VBERLIN01GS
	2P	01	GS	2P01GS
	20P	5003020	GS	20P5003020GS
	6D	20080310	GS	6D20080310GS
	14D	20081030	GS	14D20081030GS
	30P	Y	GS	30PYGS
	Z	5	GS	Z5GS
	K	753013	GS	K753013GS
	16K	54003333	GS	16K54003333GS
	V	884566	GS	V884566GS
	3S	S123456789012	GS	3S123456789012GS
	Q	10KGM020	GS	Q10KGM020GS
	20T	2	GS	20T2GS
	1T	750160429	GS	1T0750160429GS
	2T	750160430	GS	2T0750160430GS
	1Z	Customer01		1ZCustomer01
Format Trailer				RS
Message Trailer				EOT

APPENDIX A: EXAMPLE OF Mat-Labels (VARIOUS LAYOUTS)

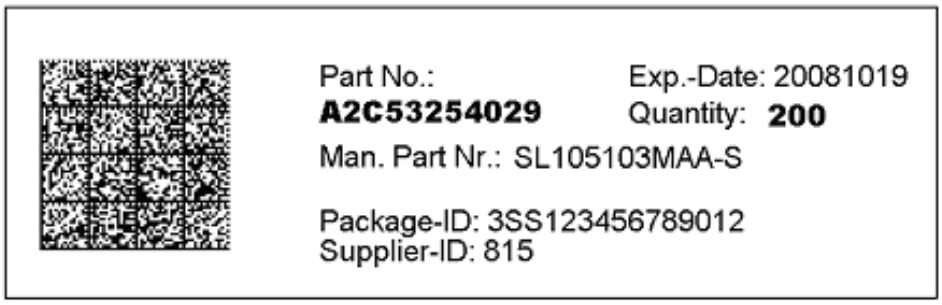
Proposals for field description:

- Part No. = Customer Part Number
- Man. Part No = Manufacturer Part Number
- Quantity = Quantity
- Add.Info = Additional Part Information
- Man.Date or Date Code: = Date of Manufacturing
- Exp. Date = Expiration Date
- Suppl. = Supplier Name
- 1. Batch = Batch-No. #1
- 2. Batch = Batch-No. #2
- MSL or MS-Level = Moisture Sensitive Level
- Index = Material Revision (Part-Index)
- Purchase = Purchase Order Number
- Shipping Note = Shipping Note Number (Shipping Reference)
- Part Name = Part Description
- Ord.Code = Ordering Code
- Man.Loc. = Manufacturer Location

Comprehensive Label (small 70 x 48 mm, as sample):



Small Label (80 x 25 mm, as sample)



Very Small Label (74 x 22 mm, as sample)