

MARKING SPECIFICATION

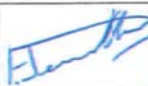






SUBJECT: Marking of components

AREA OF APPLICATION: All programmes, except where specified otherwise in the order

REFERENCE DOCUMENTS (latest versions):

- MIL-STD-130
- MQF SUPPLIER QUALITY MANUAL
- 4-MF-1-064-001 MONITORING OF MACHINED COMPONENTS EXCEPT BLANKS
- B-M-2-299-013 SELF ADHESIVE PRINTED LABELS
- 4-M-6-180-001 PRODUCTION OF DATA PLATES ALUMINIUM ADHESIVES
- B-M-2-299-013 SELF ADHESIVE PRINTED LABEL

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MARKING SPECIFICATION

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K	01/06/16	Major update. Amendments made shown by a vertical line in the margin: - final marking of the <i>manufactured</i> item reference and not the painted item reference - removal of all notes in paragraph 1 - amendment to the categories - amendment to section 5.6 – category 6 extended to forged blanks - Addition of section 6 – specific marking rules - Addition of specification references applicable to self-adhesive plastic and metallic labels. - Addition of section 8 – Labelling	C. Lemoine F. Jeantheau

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1 SUBJECT

This specification covers the definition of the identification marks on items and the methods of producing them for fabricated mechanical components.

This specification does not apply:

- *to the marking of harnesses (see B.M.7.049.001)*
- *to the marking of electrical and electronic equipment (see B.M.9.055.029)*
- *to the marking of CE equipment(see I.M.9.020.001)*
- *to the marking of specific tools (accessories)*

2 ABBREVIATIONS

CMID: CMI Defence

P /N: Part number (supplier's component number)

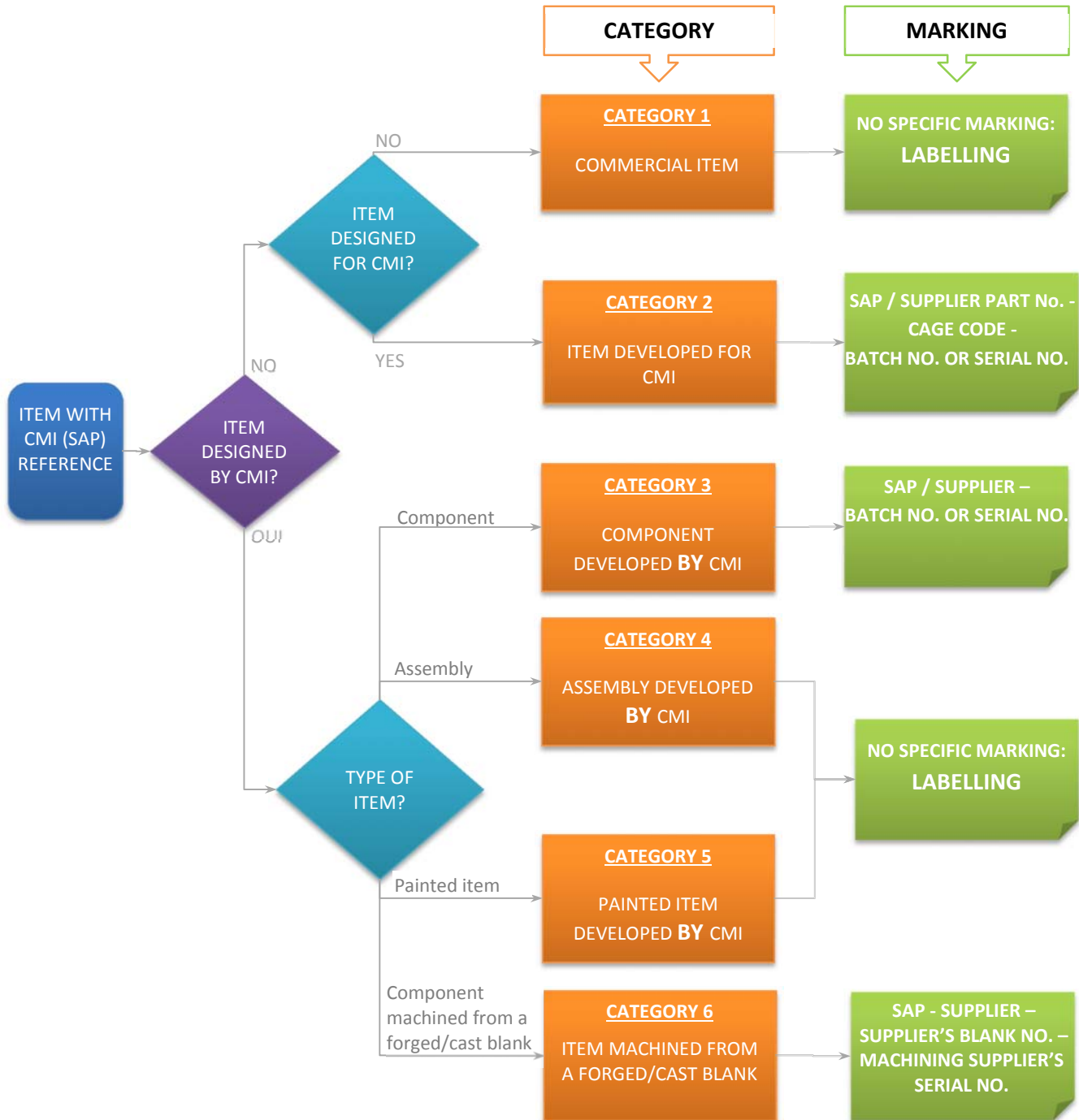
3 DEFINITIONS

Item:	The item is identified by its SAP No., which comprises 8 digits. If and only if the item No. is not assigned to the product, this can occur in the context of a prototype, then it must be marked with the drawing number.
Batch number:	Number used to identify a batch of components . A batch comprises a series of components from the same production run (e.g.: same batch of material, same heat treatment kiln, etc.)
Serial number:	Unique number used to identify each component.
Assignment of batch or serial Nos.:	This number is assigned by the supplier if no specific request is made on the order. The supplier is responsible for this number, if CMID's specific request conflicts with the production (No. requested by CMID already used), the supplier must notify CMID.
Supplier / subcontractor identification code:	Each supplier / subcontractor to CMID has an identification code comprising three letters. This identification code is used to identify the supplier on the acceptance request form. If the supplier does not know his identification code, he must request it from the Procurement Department by email. In the case where a supplier has developed the own entire product (conception, drawings, specifications, etc.), he will be asked to use his CAGE CODE No. instead of his supplier identification code.
CAGE CODE:	The NATO code of a commercial or governmental organisation is an alphanumeric code comprising five characters used to identify manufacturers, distributors, standardisation bodies, government bodies or service providers.
SAP:	CMID item reference shown on the purchase order or drawing depending on the category.
Acceptance request	Document to be sent by the supplier to CMID for approval before dispatch (see MQF)

4 SUMMARY OF THE CATEGORIES AND THE MARKING

The marking principle will vary depending on the importance of the items.

Items constituting the turrets may be classified in 6 categories, namely:



5 DETAILS OF THE CATEGORIES AND MARKING STRUCTURE

5.1 Category 1 items

Commercial items not designed BY / FOR CMI => Commercial off-the-shelf items (COTS)

⇒ **No marking**, but the components must remain identifiable until they are used.

It is, therefore, necessary to identify them by labelling: see [section 8](#).

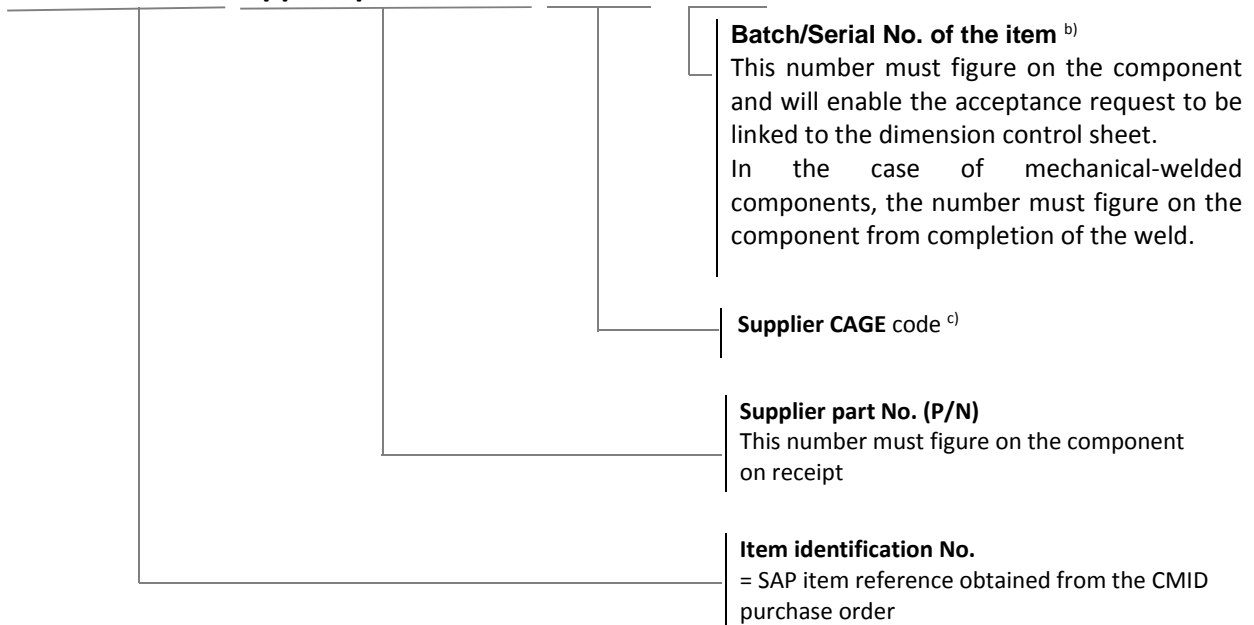
Examples: Rivets, screws, fan, etc.

Note: In the case of standard items that are machined or subject to specific treatment after purchase, these will figure in a CMI drawing and/or item data sheet and will be treated for marking purposes like category 3, 4 or 5 components.

5.2 Category 2 items

In the case of purchased items designed FOR CMI, the marking is as follows:

⇒ **SAP item No. / Supplier part No. - XXXXX – ZZZZ** ^{a)}



Notes:

- a) The separator “/” may be replaced by a “.” or by a line break.
- b) A serial number can only be assigned once. If the item is rejected on receipt of the material, during fabrication or during dimension control, the serial number assigned to that item must not be used again.
- c) If the subcontractor does not have a CAGE code, he shall use his supplier identification code.

5.3 Category 3 items

Items considered as **components designed BY CMI** are:
any item according to a CMI drawing which refers to this specification in the Drawing Notes.

Example:

Note(s) :

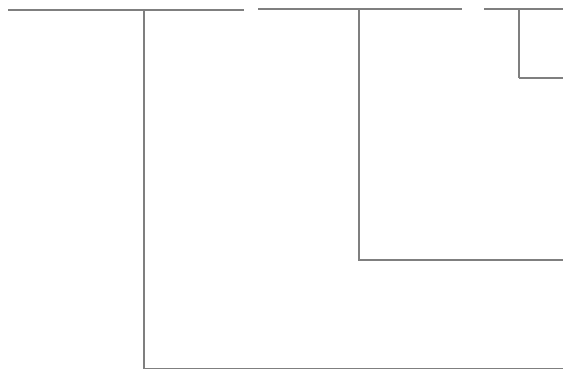
1) Marquage suivant spec. S-M-6-290-176
 Hauteur des caracteres : 5mm
 Marking according to spec. S-M-6-290-176
 Characters height : 5mm

This category covers mainly:

- unpainted components
- mechanical-welded assemblies
- some assemblies: component + inserts or threaded bushes (see drawing)

In the case of components designed BY CMI, the marking is as follows:

⇒ **SAP item No. / Supplier No. -ZZZZ** ^{a)}



Batch/Serial No. of the item ^{b)}

This number must figure on the component and will enable the acceptance request to be linked to the dimension control sheet.

In the case of mechanical-welded components, the number must figure on the component from completion of the weld.

Supplier identification code

= three-letter supplier code assigned by CMI

Item identification No.

= SAP item reference obtained from the CMI drawing which refers to this specification.

Notes:

- a) The separator “/” may be replaced by a “.” or by a line break
- b) A serial number can only be assigned once. If the item is rejected on receipt of the material, during fabrication or during dimension control, the serial number assigned to that item must not be used again.

Important:

If no marking area is shown on the drawing, there will be no marking and monitoring will be by means of the labelling: see [section 8](#)

5.4 Category 4 items

Items considered as assemblies designed BY CMI are:
any item according to a CMI drawing which does not refer to this specification in the Drawing Notes.

⇒ **No marking**, but these items must remain identifiable until they are used.

It is, therefore, necessary to identify them by labelling: see [section 8](#).

Note: The items constituting the assembly are subject to this specification. If one of the constituents is an item designed for CMI (category 2 item) or a component designed by CMI (category 3 item), it must be marked as indicated in the preceding sections.

5.5 Category 5 items

Items considered as painted items designed BY CMI are:
any item according to a CMI drawing which refers to a paint specification in the Drawing Notes.

⇒ **No marking**, but these items must remain identifiable until they are used.

It is, therefore, necessary to identify them by labelling: see [section 8](#).

Note: The unpainted item is subject to this specification (cat 2 or 3).

If this is an item designed for CMI (category 2 item) or a component designed by CMI (category 3 item) it must be marked as indicated in the preceding sections.

The SAP No. of the unpainted item corresponds to the SAP No. on the item drawing.

The SAP No. of the painted item corresponds to the SAP No. on the purchase order.

5.6 Category 6 items

▷ **The specific marking of items machined from forged / cast blanks**

SAP item No.

Machining supplier No. - ZZZZZ - XXX.Y^{b)}

Serial No. after machining

The serial number shall be engraved:

XXX → Sequential No. of the component produced

Y = 1 → 1st machined component is in conformity

Y = 2 → If the 1st machined component is rejected, the next machined component is assigned the number 2

Y = 3 → If the first 2 machine components are rejected, the next machined component is assigned the number 3

Etc.

Note: listing reference of the serial Nos.: 4.MF.1.064.001

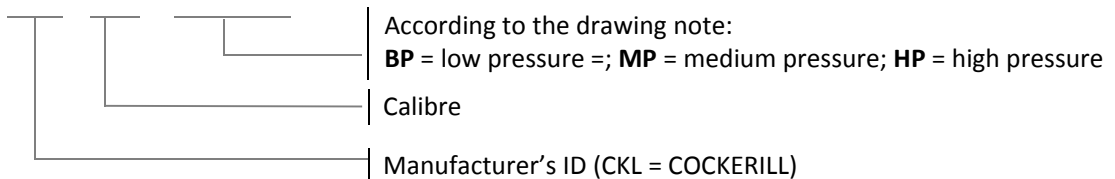
Serial number of the forged blank, comprising 5 digits

Identification code of the supplier machining the blank
= three-letter supplier code assigned by CMI

▷ **Specific marking of the breech:**

Note: in the case of the breech, comply with the drawing

⇒ **CKL CAL Pressure**



SAP item No.

Item identification No.

= SAP item reference obtained from the CMI drawing which refers to this specification

Machining supplier No. - ZZZZZ - XXX.Y^{a) b)}

See preceding section (item machined from forged / cast blank)

Notes:

- a) The serial number of the breech will also be the serial number of the gun assembly.
- b) A serial number can only be assigned once. If the item is rejected on receipt of the material, during fabrication or during dimension control, the serial number assigned to that item must not be used again.

6 SPECIFIC MARKING RULES

- a) **If there is not sufficient space on the component for the full marking:**
- the SAP reference is marked on the component (if possible).
 - the other information is provided by the labelling: see [section 8](#).
- b) In addition to the specific marking required by CMID, the item or its components may contain the manufacturer's initial marking
E.g.: casting code
- c) If there is a conflict between the information on the drawing and this specification, the information on the drawing shall prevail.
- d) Marking of the items does not exempt suppliers / subcontractors from identifying the packages they send to CMID. Supplier labels shall be applied or attached to the packaging as specified in CMID's purchase order. These labels shall be supplied by the CMID Procurement Department.

7 MARKING METHOD

7.1 Choice of method

The marking method shall be chosen based on the size of the items, their materials, their uses and their fabrication methods.

Under no circumstance is the marking:

- to alter the shape of the component;
- alter its dimensions;
- adversely affect its operation.

The various methods are described in the following section.

Notes:

- a) Any marking method requiring the application of paint shall use paint resistant to chemical agents. The colour of the paint shall be that contained in the plan or specified in the contract.
- b) Marking must remain legible after the application of paint or other surface treatment to the item.
- c) Marking by means of labels may be subject to the client's specific requirements (with respect to their resistance, durability, etc.)

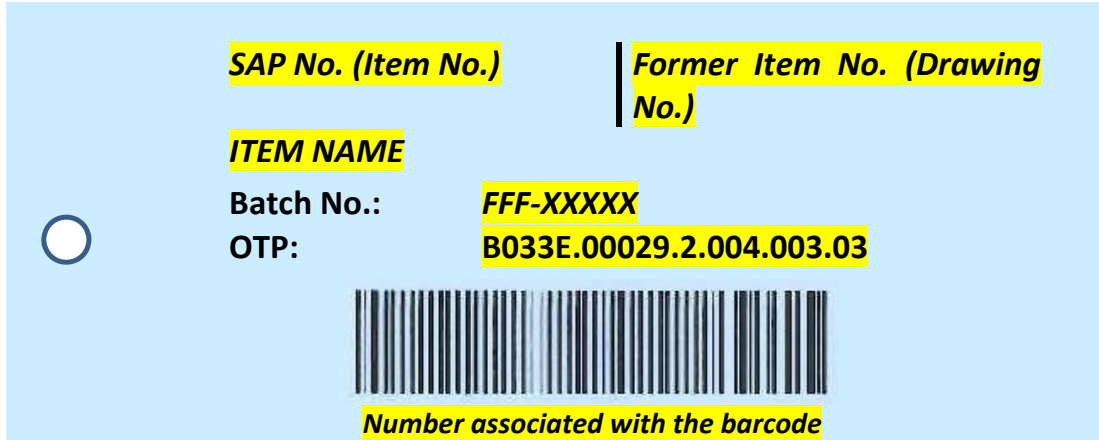
7.2 Examples of marking methods

Marking method	Marking depth	Use
Metal punch	Variable, depending on the material	Metal or non-metal components which are not deformed by the pressure required to apply the marking. In addition, the surface finish shall not adversely affect its operation.
Engraving		Finished metal components which would be deformed by marking with a metal punch. Functional, coloured marking (paint).
Electric arc etching pen		Finished metal components which would be deformed by marking with a metal punch. Uneven surface. Not to be used on stainless steel.
Stamping		Fine metal or plastic components, on non-functional surfaces.
Cast or forged		On forged or cast components, embossed or recessed characters depending on the fabrication method or in accordance with the requirements in the drawing. These markings are made on areas that will not be machined.
Moulding		Usually reserved for plastic or rubber components. Embossed or recessed marking or in accordance with the requirements in the drawing.
Electrochemical etching or electrolytic procedure		Characters normally engraved but may be embossed. Method used on fine, unprotected surfaces and on high hardness grade steels (greater than 50 RC).
Inking pad		Metal, wood, plastic sheets. On metal components with surface protection (i.e. phosphate) covered with transparent lacquer, applied before oiling. Also for temporary marking.
Inkjet printer		Very good resolution for alphanumeric characters and barcode symbols. On metal components with surface protection (i.e. phosphate) covered with transparent lacquer, applied before oiling.
Metal labels (riveted or self-adhesive)		Where other methods are not applicable and in compliance with any client specifications. See specifications 4-M-6-180-001 (PLASTIC) – B-M-2-299-013(ALU).
Self-adhesive plastic labels		Unless specified in the drawings, self-adhesive labels are not to be stuck on to the components. The adhesive on the label shall comply with IAW MIL-PRF-61002 Grade A, composition B or C, temperature -40°C to +71 °C, acrylic base. See specifications - B.M.7.049.001 and B.M.9.055.029 for electronic components - B-M-2-299-013 for other components
Laser engraver	Variable, depending on the material (1)	Very good resolution for alphanumeric characters and barcode symbols. Characters of height and width in the range 0.18 mm (0.007”) to 102 mm (4”).

(1) Marking controlled by the laser output energy enabling marking of 50 µm (0.002”) without penetration of the metal base or deep marking on polymer: 76 to 127 µm (0.003” to 0.005”).

8.2 Internal labelling

In the case of all items manufactured in-house by CMI according to OF, the format of the label used shall be as follows:



The label must be attached to the item and not stuck on to the item. In the case of small items in a sachet or similar, the label may be stuck on to the sachet.

The batch No. shall be composed as follows:

FFF: Three-letter code for the site where the item was manufactured, as follows:

- LON: Loncin site
- AUB: Aubange site
- DIS: Distroff site

XXXXX: 5 digits chosen to differentiate the different batch or serial Nos. of the same item.