

Rev. 01 - en

Supplier Guideline

Serialization & Batch Management

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Proof of change

Rev	Date	Name	Section	Description of the change
01	09.12.2024	Schuricht	7: Barcodes & Data placement	Add text for batch-traced parts

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1 Introduction

This document specifies rules for the procurement of serialized and batched items for suppliers and their suppliers of the Knorr-Bremse Group.

2 Reference Documents

Doc. ID	Doc.Nr.	Rev. (Index,..)	Title
/1/	ISO - ISO 10007:2017 - Quality management — Guidelines for configuration management	10007:2017	ISO 10007 Quality management — Guidelines for configuration management
/2/	https://www.gs1.org/sites/default/files/identification_of_components_and_parts_in_rail_industry_application_standard.pdf	1.0	GS1: Identification of Components and Parts in the Rail Industry
/3/	N18752-001, GS1 STANDARD IN DER PRODUKTION, 0.2 (Translation) (knorr-bremse.com)	1	GS1 Standard in production
/4/	https://www.gs1.org/docs/bar-codes/GS1_DataMatrix_Guideline.pdf	2.5.1	GS1: Data Matrix Guideline

3 Definition Terms

Revision Index: Revision defined by PLM system; revision available on purchase orders.

Modification Status: Additional optional revision defined into PLM, normally used to specify FFF revision or customer revision.

Manufacturing code: first three English letters of supplier name

3.2 Shortcuts

GTIN	Global Trade Item Number
BA	Batch number
SE	Serial number



4 General requirements

- For any part subject to serialization or batch management, specified on drawings or purchase order the following rules have to be applied:
 - In general, the supplier must apply a standard for configuration management & traceability, as e.g., ISO-10007, ANSI/EIA-649-B or CM2 to ensure the internal traceability of relevant data in addition to the serial number / batch.
 - The supplier must be able to identify production order, critical production parameters and more details (e.g., critical subcomponents) within his system with reference to the serial number or batch number provided to Knorr-Bremse
- The supplier can generate serial numbers, batch numbers independently of KB purchase orders or similar documents according to its own model, if the rules in Chapter 5 are met – generation model and all of the changes of it should be mandatory communicated to KB prior implementation.
 - As a risk of colliding numbers in dual sourcing exists, longer numbers are recommended (e.g., length of 8+).
 - If a part is multi sourced, KB recommendation is to add the manufacturer code as the starting prefix of the serial number or batch (if length permits it)

5 Number formats

5.1 Serial numbers

Length:

- Preferred: 8-12 digits (technical restriction minimal 3, maximal 18 characters)

Format:

- Preferred: Manufacturing code made of three letters + Numeric only
- Mandatory: only A-Z English alphabet (limits, see below) and 0-9, exceptionally special characters. / - are possible, but must be aligned with Knorr-Bremse before
- Avoid:
 - Leading 0 (Zeros)
 - Letters B, G, I, J, O, S, U, V, Z the risk of confusion is very high because these can be mistaken for numbers.
- Recommendation:

If it is possible for the supplier, it is recommended that the first three digits in the serial number are marked with the first three letters of the supplier's name.



5.2 Batches (Lot)

Length:

- Preferred: 8-12 digits (technical restriction minimal 3, maximal 15 characters)

Format:

- Preferred: Manufacturing code made of three letters + Numeric only
- Mandatory: only A-Z English alphabet (limits, see below) and 0-9, exceptionally special characters. / - are possible, but must be aligned with Knorr-Bremse before
- Avoid:
 - Leading 0 (Zeros)
 - Letters B, G, I, J, O, S, U, V, Z the risk of confusion is very high because these can be mistaken for numbers.
- Recommendation:
 - If it is possible for the supplier, it is recommended that the first three digits in the batch number are marked with the first three letters of the supplier's name.

6 Barcode Types

- Each product with subject to serialization or batch management should have a suitable barcode attached on the product and depending on packaging also on the outer packaging (see following chapter)
- The format / standard of the barcode can be any of the following.

6.1 GS1 Datamatrix

- GS1 2D Datamatrix application according to GS1 standard, see document /2/
- If the product is manufactured with KB Branding, the GTIN will be provided by Knorr-Bremse and must be added with AI (01) in clear text. If not, the GTIN / 01 identifier should not be applied to the product.
- In addition, it is mandatory to add the identifiers:
 - 01 GTIN (Global Trade Item Number) if provided by Knorr Bremse
 - 10 For batch number, if product is batched.
 - 21 For serial number if product is serialized.
 - 240 For KB Material number
- Identifiers must be encoded into the Datamatrix and added as clear text.
- The GS1 Barcode must be validated, either by a proof with GS1 check of the barcode or via approval from Knorr-Bremse.



KNORR-BREMSE
 (01)04061272028228
 (21)1120480047
 (240)11111206



KNORR-BREMSE
 (01)04061272287342
 (10)F58337
 (240)8.181.0.085.006.6

Example type plates with GTIN (01), Serial (21) / Batch (10) and KB Material number (240)

- Optional additional identifiers:
 - 7021 Modification Status
 - 7022 Revision Index

6.2 KB Barcode

- If GS1 cannot be applied, the fallback solution is a 1D Barcode Type Code 128 acc. to DIN EN799.
- Contents of Barcode contains "KBmaterialnumber#serialnumber#" or "KBmaterial-number#batchnumber#"
 - 1.) KB material number
 - 2.) Serial number or batch number (see rules above, chapter 5)
- The data must be printed in a barcode where the material and serial number must be separated by "#".
 - Additionally, the text should be readable in alphanumeric text.
 - The barcode must be printed on a label and stuck to the product.
- Example:



1183708/1#3520310303#

- Format Barcode
 - min. length: 50 mm
 - max. length: 120 mm
 - Height: no spec.
 - Accuracy class: up to 4 Mills
 - Type/size of type: must be readable without lenses.

7 Barcodes & data placment

For parts requiring serialization:

The product to be delivered is subject to a serialization obligation.

Serial number needs to be direct marked/type plate/labeled on the physical part and the same serial number needs to be named on the packaging labels if packed in individual packaging and certificates. On the physical unit and on the packaging serial number must be in plain text (HRI), as well as a barcode/GS1 DataMatrix containing this information (e.g. barcode EAN128 per DIN EN799).

The product traceability data must be retained by the supplier as part of its duty of care and made available to Knorr-Bremse as required.

For batch traced parts:

The product to be delivered is subject to batch/lot handling obligation.

If a batch number needs to be engraved/labeled on the physical part (like calendar week and year), the same Batch number needs to be named on the packaging label and delivery documents/certificates.

Each packaging unit must contain a label/typeplate/direct marking that contains the material and batch/lot number (max.15 digits) in plain text (HRI), as well as a barcode/GS1 datamatrix containing this information. (e.g. type code EAN128 per DIN EN799) and also specified on the delivery note and attached quality certificates.

The product traceability data must be retained by the supplier as part of its duty of care and made available to Knorr-Bremse as required.

7.1 On product

- If possible, the data & chosen barcode should be integrated into the standard type plate, but an additional label is also an option that needs to be agreed with Knorr-Bremse.
- Position should be confirmed by Knorr-Bremse or is specified in the provided drawings, but it should be chosen in a way that the barcode is easily readable while handling and mounting the part.
- If products are too small to use a barcode, exceptionally direct laser engraving and other suitable methods can be mutually agreed but readability with human eyes, and general mobile phone camera scanners should be assured.

7.2 On packaging

- If a product is packaged individually, a barcode must be on the outside of the packaging in addition to the barcode on the product.
- Only products with the same batch are allowed in the same packaging. If multiple units of a batch are inside one package/box, the barcode should also be added on the outside of the packaging.

7.3 On documents

- Serial numbers and batches must be specified on the delivery note and where required on additional quality documents (e.g., 3.1 certificate according to DIN EN 10204)



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