

NORSOK STANDARD

DESIGN PRINCIPLES
CODING SYSTEM

Z-DP-002
Rev. 3, October, 1996

Please note that whilst every effort has been made to ensure the accuracy of the NORSOK standards neither OLF nor TBL or any of their members will assume liability for any use thereof.

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INTRODUCTION

Objectives of the NORSOK Coding System

The coding system has been developed to meet the following main objectives:

- To support the objectives of NORSOK.
- Compliance with the functional NORSOK standards to enable standardised deliveries and transfer of experience.
- To contribute to a quick project initiation and minimum project execution time.
- To ensure common coding for multifunctional teams and multi-skilled personnel.
- To enable and ensure efficient and standardised communication within the petroleum and natural gas industries.
- To support functional breakdown of a facility and related documentation of systems, subsystems and equipment to ensure standardisation and reuse.

Main Changes from revision 2 to revision 3

These are in summary:

- The functional breakdown has been simplified in that the number of levels in breakdown have been reduced; the unit and sub-unit have both been removed from the structure
- In general the identification codes have been tried to be made simpler and less classifying; change to simpler identification
- The documentation identification code has been simplified
- The TAG Code format has been designed to 6 different main types, there is no general coding format covering all main groups
- Association of attributes to the code formats have been made more explicit, more have been made mandatory. The attributes are in general anticipated to be registered as information elements in the information management systems / technical databases
- The definition of systems and subsystems have been revised and made more explicit
- Tag coding of Telecommunication does not have a separate section, but has been included as part of instrumentation
- HVAC is regarded to be as a utility system in general, and a special system
- Documentation codes have been simplified

1 FOREWORD

NORSOK (The competitive standing of the Norwegian offshore sector) is the industry initiative to add value, reduce cost and lead time and remove unnecessary activities in offshore field developments and operations.

The NORSOK standards are developed by the Norwegian petroleum industry as a part of the NORSOK initiative and are jointly issued by OLF (The Norwegian Oil Industry Association) and TBL (Federation of Norwegian Engineering Industries). NORSOK standards are administered by NTS (Norwegian Technology Standards Institution).

The purpose of this industry standard is to replace the individual oil company specifications for use in future petroleum industry developments and operations, subject to the individual company's review and application.

The NORSOK standards make references to international standards. Where relevant, the contents of this standard will be used to provide input to the international standardisation process. Subject to implementation into international standards, this NORSOK standard will be withdrawn.

All annexes except annex F, G and H are normative.

2 SCOPE

This coding system has been developed for tag coding and document coding.

Coding of articles and bulk materials is governed by the NORSOK standard Z-CR-002, Component identification.

3 NORMATIVE REFERENCES

IEC 1346-1	Industrial systems, installations and equipment and industrial products - Structuring principles and reference designations Part 1: Basic rules
ISO 3511	Process measurement control functions and instrumentation - Symbolic representation (NS 1438)
ISO 3511-1	Part 1: Basic requirements
ISO 3511-2	Part 2: Extension of basic requirements
ISO 3511-3	Part 3: Detailed symbols for instrument interconnection diagrams
ISO 8601	Data elements and interchange formats - Information interchange - Representation of dates and times
NEK 606	Cables for offshore installations. Halogen-free, or mud resistant
NORSOK L-CR-001	NORSOK standard - Piping and valves
NORSOK M-CR-501	Surface preparation and protective coating
NORSOK R-CR-004	Piping and equipment insulation
NORSOK Z-DP-001	NORSOK standards and data sheets
NORSOK Z-CR-001	Documentation for operation

NORSOK Z-CR-002 Component identification
 NS 5820 Supplier's documentation of equipment

4 DEFINITIONS AND ABBREVIATIONS

4.1 Definitions

A	Alphabetic character
N	Numeric character
Z	Alphanumeric character
Attribute	Information element that describes a document or tag with further details
Document	A limited amount of information stored on various types of media.
Document id.	A code that uniquely defines a document and follows the document during the document's life cycle.
Facility	A facility consists of functional systems.
System	Functional systems provide services independent of the technology employed.
Subsystem	Subsystems are a break down of systems.
Function & type code	Information elements that describe the function of a specific item.
Tag	A unique code that defines the functional location and function of a physical component within a facility. The "functional location" only refers to where the tag is located within a system, <u>NOT</u> the precise physical position.
Originator	The organisation/contractor/supplier who initially created a document.
Responsible party	The organisation currently responsible for a document, may change over the lifetime of the document.
Shall	Shall is an absolute requirement that shall be followed strictly in order to conform with the standard.
Should	Should is a recommendation. Alternative solutions having the same functionality and quality are acceptable.
May	May indicates a course of action that is permissible within the limits of the standard (a permission).
Can	Can-requirements are conditional and indicate a possibility open to the user of the standard.

4.2 Abbreviations

Achilles	The code of a vendor / company as defined in the catalogue called the Achilles code, maintained by the joint industry company, which is used for vendor information and qualifications
NS	Norsk Standard
IEC	International Electrotechnical Commission
BOP	Blow out preventer
EDP	Electronic Data Processing
GBS	Gravity Base Structure
HVAC	Heating, ventilation and air conditioning

P&ID	Piping and instrumentation diagram
ROV	Remotely Operated Vehicle
UHF	Ultra High Frequency
UPS	Un-interruptable Power Supply
VHF	Very High Frequency

5 DOCUMENT CODING

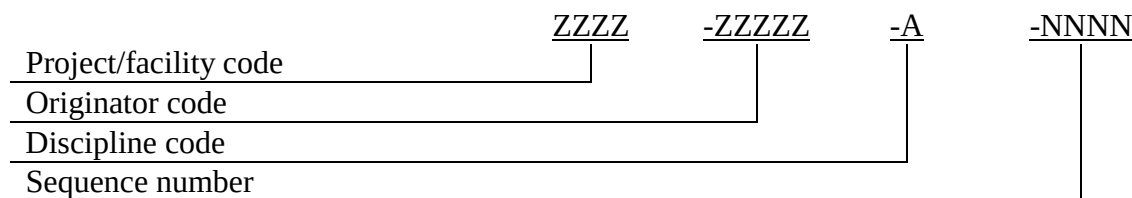
5.1 General

This section of the Coding System covers the coding of documents used throughout the life of a facility, including technical (engineering and manufacturing), administrative and procurement documents.

A complete document code consists of the document identification code and mandatory attributes.

5.2 Document identification code format

The document identification code structure is:



The project/facility code shall be a maximum of four alphanumeric characters.

The originator code is identified by maximum five alphanumeric characters. The originator code shall not be changed, even if the responsibility for the document is changed. The Achilles code should be used as the originator code.

The discipline code is identified by one alphabetic character.

Sequence number shall start from 0001 for each originator, and per discipline. No intelligence shall be included in the sequence number

The project/facility code, originator code, discipline code and sequence number shall be separated by a hyphen (“-”) character. This character shall only be used as a separating character.

Examples: S5-10696-P-0001

A Saga Petroleum project, Achilles code as originator code (Aker Engineering), and first process document.

C010-KE-I-0001

A Phillips Petroleum project, project allocated originator code (Kværner Engineering), first instrument document.

5.3 Mandatory attributes

The mandatory attributes shall be used to enable further detailed description, cross-referencing and presentation.

All mandatory attributes shall be registered in the document information system and shown on the document. When not applicable NA shall be filled in.

The mandatory attributes are:

- System (Annex A)
- Subsystem (Annex A)
- Document Type (Annex D)
- Area (Annex E)
- Title (See below)
- Responsible Party (See below)
- Revision (See below)
- Revision Date (according to ISO 8601, 1988. Example: 19960827)
- Purchase order identification See below
(Only applicable for supplier information)

More than one attribute may be defined. If more than one is defined it shall be registered in document information system.

The title shall describe the content of the document in a concise way, max. 80 characters.

The responsible party code identifies the organisational unit responsible for the document. The responsible party code is identified by up to five alphanumeric characters. The responsible party code shall, at first, be the same as the originator code, but may change during a document's life cycle. For example a document created by an engineering contractor may have its responsibility transferred to a fabricator and later to a hook-up/commissioning contractor. The responsible party code shall be changed in the document information system each time a document is transferred from one responsible party to another. If the document is revised the responsible party code will also be changed on the document as well as in the document information system.

Revision codes. The purpose of the sequential revision number, format NN, is to give each revision a unique identification. The two character sequential number starting at 01 shall be given for the documents first issue and shall be increased with one for each revision.

Purchase order identification may be individually defined.

Example of a completed front sheet and title block with document identification code and mandatory attributes (Annex H)

5.4 Informative attributes

Informative attributes can be defined as necessary.

5.5 Manufacturer information

Manufacturer's documentation shall be identified according to manufacturer's identification system. The Achilles code for manufacturers should be used

6 TAG CODING

6.1 General

The Tag Code is used to identify a function and its logical location within a system.

The Subsystem codes as described in Annex A shall be used a mandatory attributes to the tag coding.

The following main groups of functions are defined:

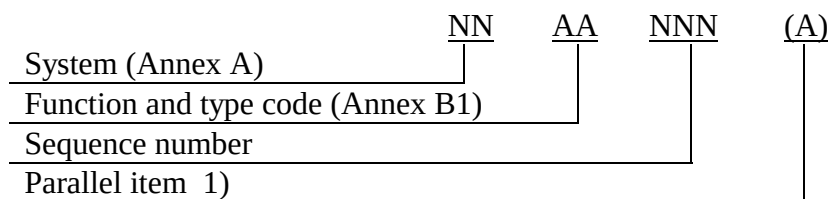
1. Main equipment
2. Piping and valves
3. Electrical
4. Instruments
5. Cables and junction boxes
6. Fire and gas detection

Each of these groups shall be coded according to its specific syntax.

The specific discipline descriptions are according to international standards where available and when applicable.

6.2 Main equipment

The tag code format for main equipment shall be:

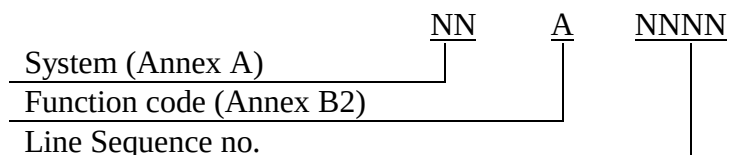


1) Parallel item shall only be used when applicable.

6.3 Piping and valves

6.3.1 Pipes and lines

The tag code format for pipes and lines:



The line sequence no. shall run consecutively within each system.

The line sequence no. shall change as follows:

- at equipment connections
- at tees for non main stream (if not tees for tapping points)
- at line size changes
- at piping class breaks
- at penetration to any monohull
- at module interface

Example: 50L0501
pipe for sea water system

For lines the following mandatory attributes shall be used in computer systems:

- subsystem no., format NN (see Annex A)
- service code, format AA (see Annex G)
- piping class identity, format AANN(A) (ref. NORSOK L-CR-001)
- area code, if passing through several areas, only the area where the main part is or where the starting point of the pipe is , format AZZZ (see Annex E)
- line size format is NNNN; if designed in inches shall be presented as: - 0025 (0,25 in.), 0150 (1,5 in.), 1000 (10 in.), etc., if designed in mm: - 0008, 0025, 0100, etc.
- coating system, format NA (ref. NORSOK M-CR-501)
- insulation class, format NA (ref. NORSOK R-CR-004)
- heat tracing requirement, format A, i.e. Y for yes and N for no

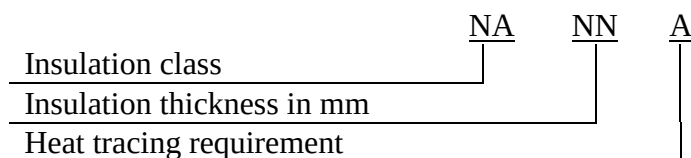
The format for lines on P&IDs, ISO. Drawings and other inspection drawings shall be, and if line lists are used the format shall be :

	<u>NNNN</u>	<u>-AA</u>	<u>-NNLNNNN</u>	<u>-AANN(A)</u>	<u>-NA</u>
Line size					
Service code (Annex G)					
Tag code format for pipes and lines					
Piping class identity					
Insulation class					

Example: 0400-WS-50L0501-AR71-2B

4 inch line size, sea water service code, sea water system, line sequence no. 0501, piping class identity (incl. pressure rating, type of material and sequence no.), insulation class (incl. cold medium conservation and insulation material type for cellular glass).

Insulation and heat tracing is optional, and the format shall be indicated separately on P&IDs as shown below:

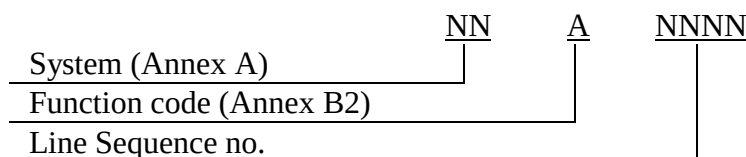


Example: 2B50N

insulation class (incl. cold medium conservation and insulation material type for cellular glass), 50mm insulation thickness, no heat tracing requirements.

6.3.2 Special items

The tag code format for special items shall be:



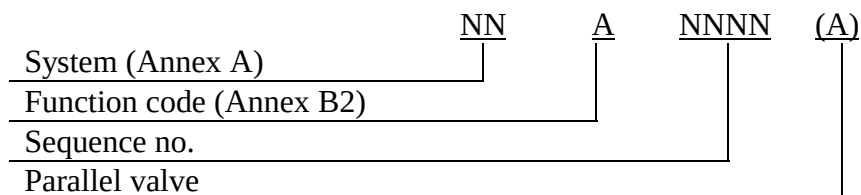
The sequence no. shall run consecutively within each system.

For special items the following mandatory attribute shall be used in computer systems:

- subsystem no., format NN (see Annex A)
- data sheet, format AAA-ANN (ref. NORSOK Z-DP-001)

6.3.3 Manual valves

The tag code format for manual valves shall be:



The sequence no. shall run consecutively within each system, function and type code combination.

Manual valve tag code is only entered at a commissioning as-built stage. During design and fabrication the valve data sheet no. according to NORSOK L-CR-001 shall be used.

Example: 40V0035B

cooling medium system, parallel manual valve no. 0035B.

For manual valves the following mandatory attributes shall be used in computer systems:

- subsystem no., format NN (see Annex A)
- valve size in inches or mm, format NNNN, if designed in inches: - 0025 (0,25 in.), 0150 (1,5 in.), 1000 (10 in.), etc., if designed in mm: - 0008, 0025, 0100, etc.