

DEP SPECIFICATION

SYMBOLS AND IDENTIFICATION SYSTEM - MECHANICAL

DEP 31.10.03.10-Gen.

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DESIGN AND ENGINEERING PRACTICE



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PREFACE

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These views are based on the experience acquired during involvement with the design, construction, operation and maintenance of processing units and facilities. Where deemed appropriate DEPs are based on, or reference international, regional, national and industry standards.

The objective is to set the standard for good design and engineering practice to be applied by Shell companies in oil and gas production, oil refining, gas handling, gasification, chemical processing, or any other such facility, and thereby to help achieve maximum technical and economic benefit from standardization.

The information set forth in these publications is provided to Shell companies for their consideration and decision to implement. This is of particular importance where DEPs may not cover every requirement or diversity of condition at each locality. The system of DEPs is expected to be sufficiently flexible to allow individual Operating Units to adapt the information set forth in DEPs to their own environment and requirements.

When Contractors or Manufacturers/Suppliers use DEPs, they shall be solely responsible for such use, including the quality of their work and the attainment of the required design and engineering standards. In particular, for those requirements not specifically covered, the Principal will typically expect them to follow those design and engineering practices that will achieve at least the same level of integrity as reflected in the DEPs. If in doubt, the Contractor or Manufacturer/Supplier shall, without detracting from his own responsibility, consult the Principal.

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- 1) Operating Units having a Service Agreement with Shell GSI or another Shell Company. The use of DEPs by these Operating Units is subject in all respects to the terms and conditions of the relevant Service Agreement.
- 2) Other parties who are authorised to use DEPs subject to appropriate contractual arrangements (whether as part of a Service Agreement or otherwise).
- 3) Contractors/subcontractors and Manufacturers/Suppliers under a contract with users referred to under 1) or 2) which requires that tenders for projects, materials supplied or - generally - work performed on behalf of the said users comply with the relevant standards.

Subject to any particular terms and conditions as may be set forth in specific agreements with users, Shell GSI disclaims any liability of whatsoever nature for any damage (including injury or death) suffered by any company or person whomsoever as a result of or in connection with the use, application or implementation of any DEP, combination of DEPs or any part thereof, even if it is wholly or partly caused by negligence on the part of Shell GSI or other Shell Company. The benefit of this disclaimer shall inure in all respects to Shell GSI and/or any Shell Company, or companies affiliated to these companies, that may issue DEPs or advise or require the use of DEPs.

Without prejudice to any specific terms in respect of confidentiality under relevant contractual arrangements, DEPs shall not, without the prior written consent of Shell GSI, be disclosed by users to any company or person whomsoever and the DEPs shall be used exclusively for the purpose for which they have been provided to the user. They shall be returned after use, including any copies which shall only be made by users with the express prior written consent of Shell GSI. The copyright of DEPs vests in Shell Group of companies. Users shall arrange for DEPs to be held in safe custody and Shell GSI may at any time require information satisfactory to them in order to ascertain how users implement this requirement.

All administrative queries should be directed to the DEP Administrator in Shell GSI.

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1. INTRODUCTION

1.1 SCOPE

This DEP specifies requirements and gives recommendations for:

- a. Symbols for the graphical presentation of equipment and piping in process flow schemes (PFSS), utility flow schemes (UFSS) process engineering flow schemes (PEFSS) and utility engineering flow schemes (UEFSS).
- b. Identification numbering system for equipment and piping in PFSS, UFSS, PEFSS, UEFSS and other documents.

This is a revision of the DEP of the same number dated February 2012; see (1.5) regarding the changes.

1.2 DISTRIBUTION, INTENDED USE AND REGULATORY CONSIDERATIONS

Unless otherwise authorised by Shell GSI, the distribution of this DEP is confined to Shell companies and, where necessary, to Contractors and Manufacturers/Suppliers nominated by them.

This DEP is intended for use in facilities related to oil and gas production, gas handling, oil refining, chemical processing, gasification, distribution and supply/marketing. This DEP may also be applied in other similar facilities.

When DEPs are applied, a Management of Change (MOC) process shall be implemented; this is of particular importance when existing facilities are to be modified.

If national and/or local regulations exist in which some of the requirements could be more stringent than in this DEP, the Contractor shall determine by careful scrutiny which of the requirements are the more stringent and which combination of requirements will be acceptable with regard to the safety, environmental, economic and legal aspects. In all cases the Contractor shall inform the Principal of any deviation from the requirements of this DEP which is considered to be necessary in order to comply with national and/or local regulations. The Principal may then negotiate with the Authorities concerned, the objective being to obtain agreement to follow this DEP as closely as possible.

1.3 DEFINITIONS AND ABBREVIATIONS

1.3.1 General definitions

The **Contractor** is the party that carries out all or part of the design, engineering, procurement, construction, commissioning or management of a project or operation of a facility. The Principal may undertake all or part of the duties of the Contractor.

The **Manufacturer/Supplier** is the party that manufactures or supplies equipment and services to perform the duties specified by the Contractor.

The **Principal** is the party that initiates the project and ultimately pays for it. The Principal may also include an agent or consultant authorised to act for, and on behalf of, the Principal.

The word **shall** indicates a requirement.

The word **should** indicates a recommendation.

1.3.2 Specific definitions

Term	Definition
Very toxic (substances)	Substances that are very hazardous for the environment or human health, as specified in DEP 01.00.01.30-Gen. (which also identifies "toxic" substances by reference to chemical substances databases).

1.3.3 Abbreviations

Term	Definition
PEFS	process engineering flow scheme
PFS	process flow scheme
UEFS	utility engineering flow scheme
UFS	utility flow scheme

1.4 CROSS-REFERENCES

Where cross-references to other parts of this DEP are made, the referenced section number is shown in brackets. Other documents referenced by this DEP are listed in (5).

1.5 SUMMARY OF MAIN CHANGES

This is a revision of the DEP of the same number dated February 2012. The following are the main non-editorial changes.

Section	Change
3	Renumbered sections – 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7 as 3.2, 3.3, 3.4, 3.5, 3.6 and 3.7.
3.1	Incorporated optional concept of train number in identification equipment.
3.2	Incorporated requirement for train number.
3.3	Table 1 has been updated to include subsea equipment codes.
4.1	This section has been revised for the incorporation of identification system for transmission lines and flowlines.
4.2	Renumbered sub-sections 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.2.5, 4.2.6 as 4.2.2, 4.2.3, 4.2.4, 4.2.5, 4.2.6 and 4.2.7.
4.2.2	Incorporated size in US customary / SI units.
4.2.3	Table 2 has been updated to include additional fluid codes.
4.3	Table 3 has been aligned with DEP 30.46.00.31-Gen and also added additional insulation tags.
4.4	Updated insulation codes in examples.
4.5	Incorporated new section on examples of line numbers in US customary units.
5	Incorporated new section on pipeline/flowline numbering.
6	Incorporated new section on identification of special pipe supports.

1.6 COMMENTS ON THIS DEP

Comments on this DEP may be submitted to the Administrator using one of the following options:

Shell DEPs Online (Users with access to Shell DEPs Online)	Enter the Shell DEPs Online system at https://www.shelldeps.com Select a DEP and then go to the details screen for that DEP. Click on the "Give feedback" link, fill in the online form and submit.
DEP Feedback System (Users with access to Shell Wide Web)	Enter comments directly in the DEP Feedback System which is accessible from the Technical Standards Portal http://www.shell.com/standards . Select "Submit DEP Feedback", fill in the online form and submit.
DEP Standard Form (Other users)	Use DEP Standard Form 00.00.05.80-Gen. to record feedback and email the form to the Administrator at standards@shell.com .

Feedback that has been registered in the DEP Feedback System by using one of the above options will be reviewed by the DEP Custodian for potential improvements to the DEP.

1.7 DUAL UNITS

This DEP contains both the International System (SI) units, as well as the corresponding US Customary (USC) units, which are given following the SI units in brackets. When agreed by the Principal, the indicated USC values/units may be used.

2. GENERAL

Mechanical symbols in PFSSs, UFSs, PEFSS and UEFSSs shall be in accordance with Standard Drawing S 02.002. These symbols may also be used in other documents where required. Standard Drawing S 02.002 is produced so that the symbols can easily be copied in electronic form. For equipment symbols not shown in this DEP, a simple outline should be drawn, together with a short description of its function. For very complicated equipment hook-ups a rectangle (dot-and-dash line) should be drawn with a reference to a separate scheme.

Certain basic symbols have been included for use only in PFSSs. The other symbols may be applied in all documents mentioned above.

If a symbol is not adequate to indicate the type or function of a piece of equipment, additional notes should be located next to the symbol.

For symbols not shown in Standard Drawing S 02.002, the symbols in BS 1553-1 shall be used. For coal handling and preparation plants, the symbols in ISO 561 shall be used.

For instrument symbols and identification, and valve actuating methods, reference is made to DEP 32.10.03.10-Gen. and Standard Drawing S 37.000.

For electrical symbols, reference is made to IEC 60617 and Standard Drawing S 64.000.