

DEP SPECIFICATION

## **FANS - SELECTION, TESTING AND INSTALLATION**

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**DESIGN AND ENGINEERING PRACTICE**



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## 1. INTRODUCTION

### 1.1 SCOPE

This new DEP specifies requirements and gives recommendations for the type selection, specification, testing and installation of fans and blowers intended for continuous duty in petroleum, chemical, and gas industry services.

Fans that conform to this DEP are typically used in services such as process gas, furnace forced draft, and furnace induced draft.

### 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. Any authorised access to DEPs does not for that reason constitute an authorisation to any documents, data or information to which the DEPs may refer.

This DEP is intended for use in oil refineries, chemical plants, NGL gas plants, LNG plants, LNG terminals, exploration and production facilities and, where applicable, supply/distribution installations. 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 regards to 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 object being to obtain agreement to follow this DEP as closely as possible.

### 1.3 DEFINITIONS

#### 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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Prototype Equipment/Component</b>              | All Prototypes are considered to be equipment or component parts that fall outside the Manufacturer's experience of proven operation. Equipment or component parts shall no longer be considered 'Prototype' once they have accumulated an uninterrupted operating period of more than 24,000 h in a comparable service. This operating period should have been acquired with at least three units of similar type and size having the same specific loading. Each of the three units shall have accumulated at least an operating time of 8,000 h. |
| <b>Vital, Essential and Non-Essential Service</b> | For definitions and explanation of these services, see (Appendix 1).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Continuous Operation</b>                       | A service in which it is not expected that the fan will have to be started/stopped during normal plant operation.                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Intermittent Operation</b>                     | A service in which it is expected that the fan will be started/stopped at unspecified intervals, e.g.: <ul style="list-style-type: none"> <li>Automatic starts and stops at intervals by process operated controls;</li> <li>Manual starts and stops at intervals by manual control for batch processes.</li> </ul>                                                                                                                                                                                                                                 |
| <b>Hydrogen Service</b>                           | All process conditions with a hydrogen partial pressure greater than 0.7 MPa [7 bar (abs)].                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Very Toxic Substances</b>                      | 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                        |
|-------------|-----------------------------------|
| <b>ESD</b>  | Emergency Shutdown                |
| <b>FCCU</b> | Fluidized Catalytic Cracking Unit |
| <b>HCU</b>  | Hydrocracker Unit                 |
| <b>IPF</b>  | Instrument Protective Functions   |

### 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 (6).

### 1.5 COMMENTS ON THIS DEP

Comments on this DEP may be sent to the Administrator at [standards@shell.com](mailto:standards@shell.com), using the DEP Feedback Form. The DEP Feedback Form can be found on the main page of "DEPs on the Web", available through the Global Technical Standards web portal <http://swwww.shell.com/standards> and on the main page of the DEPs DVD-ROM.

### 1.6 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.