

DEP SPECIFICATION

LIQUID RING VACUUM PUMPS AND COMPRESSORS (AMENDMENTS/SUPPLEMENTS TO API STD 681)

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DESIGN AND ENGINEERING PRACTICE



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PART I INTRODUCTION

1.1 SCOPE

This DEP specifies requirements and gives recommendations for liquid ring vacuum pumps and compressors and is based on API STD 681.

Part III of this DEP gives amendments and supplements the clauses of API STD 681 and follows the clause numbering of API STD 681.

This DEP is a revision of the DEP of the same number dated December 2004; a summary of the main changes is given in (1.6).

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 authorization to any documents, data or information to which the DEPs may refer.

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 may 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 as 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 with the object of obtaining agreement to follow this DEP as closely as possible.

1.3 DEFINITIONS

1.3.1 General definitions

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

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

The term **Vendor** is used in API STD 681. In the context of this DEP, Vendor shall be understood to mean **Manufacturer/Supplier**.

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 term **Purchaser** is used in API STD 681. In the context of this DEP, Purchaser shall be understood to mean **Principal**.

The word **shall** indicates a requirement.

The word **should** indicates a recommendation.

1.3.2 Abbreviations

Term	Definition
gpm	gallons per minute
hp	horsepower
kW	kilowatt
OEM	Original Equipment Manufacturer

1.4 CROSS-REFERENCES

Where cross-references to other parts of this DEP are made, the referenced section number is shown in brackets (). Referenced section numbers in the API document are not shown in brackets. Other documents referenced in this DEP are listed in (Part III).

1.5 GUIDANCE FOR USE

A bullet (●) in the margin of certain clauses in both this DEP and API STD 681 indicates that a decision is required of the Contractor and/or the Principal. These decisions shall be indicated directly on the relevant data/requisition sheet where provisions are made for them. Otherwise, they shall be indicated on the data/requisition sheet(s) under the heading "Additional Requirements" or stated in the purchase order.

1.6 SUMMARY OF MAIN CHANGES

This DEP is a revision of the DEP of the same number dated December 2004 with circular 91/08. The following are the main, non-editorial changes.

Old Section	New Section	Change
N/A	1.4.27	Definition of hazardous service
N/A	2.1.12	Added requirements for base line vibration data.
2.9.4	2.9.4	Requires Purchaser approval prior to purchase.
3.1.1.4	3.1.1.4	Requirements added for flow meter and for signs to indicate minimum and maximum allowable liquid level inside the pump. Included specific requirements for multiple injection ports and seal pipe design.
N/A	3.1.2.3	Added requirements for vessel retention time.
3.1.3.1	3.1.3.1	Requires transflo valves for duplex arrangements.
N/A	3.1.4.3	Added requirements for duplex filter arrangement.
N/A	3.1.6.1	Added self draining requirement for discharge piping.
N/A	3.1.6.2	Included requirements for seal flow regulation.
3.3.5	3.3.5	Added dual units and reference to electric motor drives.
3.7.1.5	3.7.1.5	Requires balanced seal fluid piping.
N/A	4.3.3.3.1	Added recommendations for testing units in excess of 75 kW (100 hp).
Part III	Part IV	Added References: DEP 33.66.05.35-Gen. and DEP 33.66.05.36-Gen.