

DEP SPECIFICATION

SPECIAL-PURPOSE GEAR UNITS FOR PETROLEUM, CHEMICAL AND GAS INDUSTRY SERVICES (AMENDMENTS/SUPPLEMENTS TO API 613)

DEP 31.29.00.32-Gen.

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ECCN EAR99

DESIGN AND ENGINEERING PRACTICE



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

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PART I INTRODUCTION

1.1 SCOPE

This DEP specifies requirements and gives recommendations for special purpose gear units for petroleum, chemical and gas industries. This DEP is based on API 613 5th edition. Part III of this specification amends, supplements and deletes various clauses of API 613 5th edition.

This DEP is a revision of the same title and number dated November 2003, which referenced ISO 13691-2001 1st edition, which is aligned to API 613 4th edition. A summary of changes from the previous edition is given in (1.5).

This DEP also reflects agreements with various special-purpose gear manufacturers during the Standardization Process.

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 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 regards 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

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.

Note: In API 613 the term **vendor** is used. In this DEP, the term vendor shall be understood to mean 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 word **shall** indicates a requirement.

The word **should** indicates a recommendation.

1.3.2 Specific definitions

Term	Definition
DN	Diameter Nominal
EN	European Standard
L/d	length to diameter ratio
NPS	Nominal Pipe Size
RTD	Resistance Temperature Detector

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 (Part IV).

1.5 SUMMARY OF MAIN CHANGES

This DEP is a revision of the DEP of the same number dated November 2003.

The previous version was written as amendments and supplements to ISO 13691:2001 which is based on API Std 613, 4th edition. This edition of the DEP is based on API Std 613, 5th edition, so the paragraph/clause numbering is different from previous DEP edition.

The following are the main, non-editorial changes. The column "Existing clause" identifies clause amendments or supplements that were present in the previous edition of the DEP, though not with the revised number. The column "New clause" lists clause amendments or supplements appearing for the first time.

Existing clause	New clause	Change
4 th ed	5 th ed	Paragraph numbering aligned to API 613 5 th edition.
1.2		Paragraph moved to DEP 31.29.00.41-Gen.
1.4		Paragraph moved to DEP 31.29.00.41-Gen.
2		Normative Reference section deleted
3		Terms and Definitions section deleted
5.1.3	2.1.6	Deleted reference to DEP regarding noise requirements to minimize DEP cross referencing.
	2.1.17	Additional clarity on dowelling of parts.
5.2.3	2.2.6	Revised since scuffing not addressed in 4 th edition of API 613, but is addressed in 5 th edition.
5.3.2.4		Deleted reference to DIN documents for tolerances, since not referenced in API 613 5 th ed.
5.3.3.2	2.5.3.2	Added note that per API 613 below 150 m/sec (30,000 ft/min) pitch line velocity, gears may be integral or shrunk on, and Manufacturer's/Supplier's recommendation, experience and cost difference should be investigated for gear construction. Previous note moved to DEP 31.29.00.41-Gen.
5.3.4.4		Deleted as now integral flanges shall be provided.

Existing clause	New clause	Change
5.4.1.1	2.3.1.1	Deleted reference to only allowing cast construction for gear casing, API 613 allows fabricated or cast. Added comment for Vendor to give recommendation for casing construction selection and experience with selection offered.
5.7.3.1	2.7.3.1	Added comment that if possible, thrust bearings shall be omitted from double helical gears.
5.7.3.2	2.7.3.2	Changed to allow tapered land thrust bearings on compressor applications with speed lower than 2000 rpm based on experience and with Principal approval. This agreement is from the Gear Standardization effort based on feedback from some gear suppliers.
	4.2.2.2.1	Added comment that Vendor to state if radiography inspection in accordance with EN standards. This agreement from the Gear Standardization effort is based on feedback from some gear suppliers.
	4.2.2.3.1	Added comment that Vendor to state if ultrasonic inspection in accordance with EN standards. This agreement from the Gear Standardization effort is based on feedback from some gear suppliers.
	4.2.2.4.1	Added comment that Vendor to state if magnetic particle inspection in accordance with EN standards. This agreement from the Gear Standardization effort is based on feedback from some gear suppliers.
	4.2.2.5.1	Added comment that Vendor to state if liquid penetrant inspection in accordance with EN standards. This agreement from the Gear Standardization effort is based on feedback from some gear suppliers.
7.3.2.1	4.3.2.1	Changed to require gear mechanical test to be part-load, full speed test to maximum part-load limit of gear Vendor.
	4.3.2.1.6	Added comment that shop moment simulator is not necessary if mechanical run test is below 3600 rpm. This agreement from the Gear Standardization effort is based on feedback from some gear suppliers.
Part IV		Deleted some DEP references to minimize DEP cross references.

1.6 COMMENTS ON THIS DEP

Comments on this DEP may be sent to the Administrator at 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://sw.w.shell.com/standards> and on the main page of the DEPs DVD-ROM.

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.

PART II GENERAL

Part III of this DEP is written as amendments and supplements to API 613, 5th edition. Wherever reference is made to API 613, it shall be understood to mean API 613, 5th edition as amended/supplemented by this DEP.

For ease of reference, the clause numbering of API 613 has been used throughout Part III of this DEP.

Clauses in API 613, which are not mentioned in this DEP, shall remain valid as written.

A bullet (●) in the margin of certain clauses in both this DEP and API 613 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.