

PIPELINE FITTINGS (AMENDMENTS/SUPPLEMENTS TO ISO 15590-2)

DEP 31.40.21.30-Gen.

June 2007

DESIGN AND ENGINEERING PRACTICE



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- 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.

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

TABLE OF CONTENTS

PART I	INTRODUCTION	4
1.1	SCOPE.....	4
1.2	DISTRIBUTION, INTENDED USE AND REGULATORY CONSIDERATIONS	4
1.3	DEFINITIONS	4
1.4	ABBREVIATIONS	5
1.5	CROSS-REFERENCES	5
1.6	SUMMARY OF CHANGES SINCE PREVIOUS EDITION	5
1.7	COMMENTS ON THIS DEP	5
PART II	AMENDMENTS/SUPPLEMENTS TO ISO 15590-2	6
1	SCOPE.....	6
6.2	TEES AND HEADERS.....	6
7	INFORMATION TO BE SUPPLIED BY THE PURCHASER	7
8	MANUFACTURING	8
8.2	STARTING MATERIAL	8
9	TESTING AND INSPECTION	9
9.2	EXTENT OF TESTING AND INSPECTION	9
9.5	NON-DESTRUCTIVE TESTING.....	11
9.6	DIMENSIONS	13
9.7	GAUGING	13
11	MARKING	14
PART V	REFERENCES	22

APPENDICES

ANNEX C	(INFORMATIVE) - TIME-OF-FLIGHT DIFFRACTION (TOFD) AND CREEP WAVE EXAMINATION	25
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PART I INTRODUCTION

1.1 SCOPE

This new DEP specifies requirements and gives recommendations for fittings for use in oil and gas transmission pipelines in both non-sour and sour service.

This DEP is based on ISO 15590-2:2003 and serves as a supplement to that document.

This is a revision of the DEP of the same number dated December 1995; a summary of the main changes is given in (1.6).

Part II of this DEP is presented in the form of amendments and supplements to ISO 15590-2 and uses the same clause numbering as ISO 15590-2.

All fittings specified to be in accordance with this DEP shall comply with the requirements of ISO 15590-2, as amended and supplemented herein.

NOTE: Both ISO 15590-2 and this DEP adopt sampling as a method to determine batch compliance. Nevertheless, **all** fittings supplied shall comply with **all** requirements of this specification.

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 primarily intended for use in oil and/or gas transmission pipelines and related facilities.

When DEPs are applied, a Management of Change (MOC) process should 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 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

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 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 **Principal** is the party which initiates the project and ultimately pays for its design and construction. The Principal will generally specify the technical requirements. 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

Defect (in NDT)	- a discontinuity or group of discontinuities whose indication(s) do not meet specified acceptance criteria.
Fitting bevel	- the total weld preparation machined on the end of a fitting.
Heat	- a batch of steel prepared in one steel making operation, resulting in one chemical composition.
Heat Treatment Batch (or Lot)	- a set of identical fittings which have been produced from the same heat, have undergone the same heat treatment and, if applicable, have been welded in accordance with the same welding procedure.
Indication (in NDT)	- evidence of a discontinuity that requires interpretation to determine its significance.
Minimum operating temperature	- the minimum temperature to which the pipeline or section of pipeline may be exposed during normal operational activities, including start-up and shut-down operations and controlled blowdown, but excluding abnormal situations such as pipeline ruptures.
Pipeline	- a system of pipes and other components used for the transportation of fluids, between (but excluding) plants. A pipeline extends from pig trap to pig trap (including the pig traps) or, if no pig trap is fitted, to the first isolation valve within the plant boundaries or a more inward valve if so nominated.
Plate	- the material for manufacturing a welded fitting before being formed into the shape of a fitting.
Purchaser	- term used in ISO 15590-2 which has same meaning as Principal.

1.4 ABBREVIATIONS

HAZ	- heat affected zone
SAW	- submerged arc welding
SMAW	- shielded metal arc welding
ToFD	- time of flight diffraction

1.5 CROSS-REFERENCES

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

1.6 SUMMARY OF CHANGES SINCE PREVIOUS EDITION

The previous edition of this DEP was dated December 1995. Other than editorial changes, the following are the main changes since that edition:

- Title changed to reflect new base standard;
- The DEP was originally based on MSS SP-75 Specification for High Test Wrought Butt Welding Fittings. This DEP is now based on a new standard, ISO 15590-2.

1.7 COMMENTS ON THIS DEP

Comments on this DEP may be sent to the DEP Administrator at standards@shell.com. Shell staff may also post comments on this DEP on the Surface Global Network (SGN) under the Standards folder.

PART II AMENDMENTS/SUPPLEMENTS TO ISO 15590-2

1 SCOPE

Replace the third paragraph of this clause with the following:

This part of ISO 15590 specifies three classes of fittings corresponding to increasing quality requirements in accordance with the technical delivery conditions of DEP 31.40.20.35-Gen. or DEP 31.40.20.37-Gen., as indicated in Table 1.

NOTE: For the purposes of this DEP, only Class A and Class C are relevant.

Replace Table 1 with the following:

Table 1 — Fitting class and corresponding pipe standard

Fitting class	Corresponding pipe standard
Class A	DEP 31.40.20.35-Gen.
Class B	Not applicable
Class C	DEP 31.40.20.37-Gen.

6.2 TEES AND HEADERS

Add the following:

Design of barred tees

Barred tees shall have a configuration of bars as indicated in Figure G. The bars shall be made of mild steel and shall be welded with full penetration welds.

Design of sphere tees

The number and the area of the slots in the through-pipe of a sphere tee shall be such, that their total area equals the flow area of the branch outlet of the sphere tee.

The slots shall have rounded edges. The through-pipe in the sphere tee shall have small holes next to the slots to allow the sphere to be pushed past the slots if the flow is taken off through the bypass.

The thickness of the through-pipe shall not be less than that of the matching line pipe.

Sphere tees shall be equipped with a 50 mm (two inch) diameter drainage point. The position of the drainage point shall be specified by the Principal.

The actual length of the sphere tee shall be advised by the Supplier in the bid.

7 INFORMATION TO BE SUPPLIED BY THE PURCHASER

Supplementary Information

Add to this section

w) additional test rings requirements for welding operations. WPQR test rings shall be supplied to the requirements of DEP 61.40.20.30-Gen. Test rings should be in a similar manufactured condition as the fittings they are to represent.

8 MANUFACTURING

8.2 STARTING MATERIAL

Replace paragraph 1 of this clause with the following

The starting material shall be blooms, billets, slabs, forging quality bar, plate, fusion welded with filler metal or seamless tubular products, produced from fully killed steels. It shall have a grain size of ASTM 7 or finer, as defined in ASTM E 112.

8.3.2 Welding

Add:

Weld repairs are only permitted to welds. Repair to the base material is not permitted.

8.3.3 Heat Treatment:

Replace:

“A record shall be maintained of each heat treatment” *by*

“A record shall be maintained of each heat treatment batch”

8.3.4 End Preparation

Add to this section:

Taper angles shall be restricted between an angle of 14 - 20 degrees.

If SMYSs of the sections to be joined are equal, then t_D shall equal t .