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Carbon Steel Induction Bends for Pipelines in Grades up to X80 - Supplement to ISO 15590-1:2001

Group Instruction for Supply

**BP GROUP
ENGINEERING TECHNICAL PRACTICES**

Foreword

This is the first issue of Engineering Technical Practice (ETP) BP GIS 43-317. This Group Instruction for Supply (GIS) is not based on heritage documents from the merged BP companies. This document is not to be used as a standalone document. It is to be used in accordance with GP 43-31 and PR 43.

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Introduction

- a. Requirements for induction bends manufactured from welded and seamless linepipe for use in flowlines and export pipelines in grades up to and including X80 (defined in accordance with PSL 2 of API 5L) is based on ISO 15590, Petroleum and Natural Gas Industries – Induction bends, fittings and flanges for pipeline transportation systems – Part 1: Induction Bends, 2001-06-01.
- b. Statements of this GIS are modifications to ISO 15590-1.
- c. Modifications to ISO 15590-1 are identified as Add, Modify to Read, or Delete.
- d. Paragraph numbers in this specification correspond to ISO 15590-1.
- e. Paragraphs of ISO 15590-1 that are not revised remain applicable.
- f. If conflicts arise between this GIS and ISO 15590-1, those defined in this document shall apply.



1 Scope

Add

The fundamental requirements of BP, provided by this GIS, are to ensure that pipeline induction bends shall have good weldability and close dimensional tolerances at welding ends to facilitate possible mechanised welding during pipeline installation.

The requirements for field bending of linepipe are addressed in GP 43-20 and GP 43-40.

This GIS shall be used in conjunction with the Induction Bend Data Sheet, detailing the design conditions and mechanical property requirements. The data sheet relevant to this application is DS 43-317, an example of which is given as Annex A.

The purchase order and the pipeline data sheet will identify if resistance to sour operating conditions is required and consequently if the additional testing defined for 'S' class materials is required.

Quality management and general requirements

The supplier and the steelmaker shall operate a quality system which ensures that requirements of this GIS can be reliably and consistently met.

The supplier's quality system shall include provision for the QM of raw materials, intermediate products, induction bend manufacture, and final inspections. The plan shall be subject to approval by BP before the commencement of manufacture.

The effectiveness of the QM system shall be subject to monitoring by BP and may be audited following an agreed period of notice.

The induction bend shall be made in accordance with the manufacturing procedure agreed between the supplier and BP before contract and qualified as required by this specification.

If required by the purchase order, the supplier shall carry out a Manufacturing Procedure Qualification (MPQ) in accordance with this specification. The qualification shall be witnessed by an authorised representative of BP. No change shall be made to a successfully qualified MPQ without the approval of the BP Technical Representative. After such approval, BP may require appropriate procedure qualification to be carried out on the new MPQ.

Qualification tests may be taken from a pre-production run or the first day production, as agreed by BP.

Test certificates and other formal documents shall use SI metric units. If necessary, the conversion factors listed in Appendix M of API 5L shall be used to achieve this. Regardless of the actual units of measurement, measuring and testing equipment shall be calibrated and certified as part of the QM system.

Supporting data shall be supplied, demonstrating the suitability of the induction bend for field welding by either shielded metal arc welding (SMAW), or mechanized/ semi-automatic welding, typically by the gas metal arc welding (GMAW) process, all without post weld heat treatment. If such data does not exist, BP may require additional tests to demonstrate the weldability of the steel.

