

# Closed Die Forgings for Use in the Petroleum and Natural Gas Industry

API SPECIFICATION 20C  
FIRST EDITION, OCTOBER 2009

EFFECTIVE DATE: APRIL 1, 2010

ADDENDUM 1, JULY 2014





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## Upstream Segment

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# Closed Die Forgings for Use in the Petroleum and Natural Gas Industry

## 1 Scope

### 1.1 Purpose

This standard specifies requirements and gives recommendations for the design, qualification, and production of closed die forgings for use in API service components in the petroleum and natural gas industries when referenced by an applicable equipment standard or otherwise specified as a requirement for compliance.

### 1.2 Applicability

This standard is applicable to equipment used in the oil and natural gas industries where service conditions warrant the use of closed die forgings. Examples include pressure-containing or load-bearing components.

### 1.3 Forging Specification Levels (FSLs)

This standard establishes requirements for four FSLs. These FSL designations define different levels of forged product technical, quality, and qualification requirements.

## 2 Normative References

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

API Specification 6A, *Specification for Wellhead and Christmas Tree Equipment*

ASTM A370 <sup>1</sup>, *Standard Test Methods and Definitions for Mechanical Testing of Steel Products*

ASTM A604, *Standard Practice for Macroetch Testing of Consumable Electrode Remelted Steel Bars and Billets*

ASTM E10, *Standard Test Method for Brinell Hardness of Metallic Materials*

ASTM E18, *Standard Test Methods for Rockwell Hardness of Metallic Materials*

ASTM E45, *Standard Test Method for Determining the Inclusion Content of Steel*

ASTM E110, *Standard Test Method for Indentation Hardness of Metallic Materials by Portable Hardness Testers*

ASTM E112, *Standard Test Methods for Determining Average Grain Size*

ASTM E381, *Standard Method of Macroetch Testing Steel Bars, Billets, Blooms, and Forgings*

ISO 2859-1 <sup>2</sup>, *Sampling procedures for inspection by attributes—Part 1: Sampling plans indexed by acceptance quality limit (AQL) for lot-by-lot inspection*

NCSL Z540.3 <sup>3</sup>, *Requirements for the Calibration of Measuring and Test Equipment*

<sup>1</sup> ASTM International, 100 Barr Harbor Drive, West Conshohocken, Pennsylvania 19428, [www.astm.org](http://www.astm.org).

<sup>2</sup> International Organization for Standardization, 1, ch. de la Voie-Creuse, Case postale 56, CH-1211, Geneva 20, Switzerland, [www.iso.org](http://www.iso.org).

<sup>3</sup> NCSL International, 2995 Wilderness Place, Suite 107, Boulder, Colorado 80301-5404, [www.ncsli.org](http://www.ncsli.org).