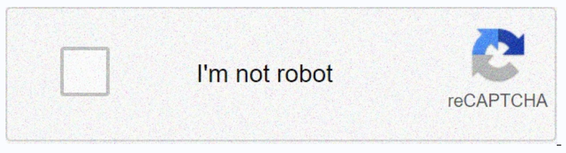

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Designation: D 1777 – 96 (Reapproved 2002)

An American National Standard

Standard Test Method for Thickness of Textile Materials[1]

This standard is issued under the fixed designation D 1777; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This test method covers the measurement of the thickness of most textile materials.

1.2 This test method applies to most fabrics including woven fabrics, air bag fabrics, blankets, napped fabrics, knitted fabrics, layered fabrics, and pile fabrics. The fabrics may be untreated, heavily sized, coated, resin-treated, or otherwise treated. Instructions are provided for testing thickness, except as provided for in another standard such as listed in Section 2.

1.3 The values stated in SI units are to be regarded as the standard. The values stated in inch-pound may be approximate.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*

D 123 Terminology Relating to Textiles[2]

D 374 Test Methods for Thickness of Solid Electrical Insulation[2]

D 418 Test Methods for Testing Pile Yarn Floor Covering Construction[3]

D 461 Test Methods for Felt[2]

D 579 Specification for Greige Woven Glass Fabrics[2]

D 1776 Practice for Conditioning Textiles for Testing[2]

D 2475 Specification for Wool Felt[2]

D 2904 Practice for Interlaboratory Testing of a Textile Test Method That Produces Normally Distributed Data[2]

D 2906 Practice for Statements on Precision and Bias for Textiles[2]

D 3218 Specification for Polyolefin Monofilaments[2]

2.2 *ASTM Adjuncts:*

TEX-PAC[3]

3. Terminology

3.1 Definitions—For definitions of other textile terms used in this test method, see Terminology D 123.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *cross-machine direction, CD, n*—the direction in the plane of the fabric perpendicular to the direction of manufacture.

3.2.1.1 *Discussion*—This term is used to refer to the direction analogous to coursewise or filling direction in knitted or woven fabrics, respectively.

3.2.2 *machine direction, MD, n*—the direction in the plane of the fabric parallel to the direction of manufacture.

3.2.2.1 *Discussion*—This term is used to refer to the direction analogous to walewise or warp direction in knitted or woven fabrics, respectively.

3.2.3 *pressure, n*—the force exerted to a surface per unit area.

3.2.3.1 *Discussion*—Pressure may be expressed in any appropriate or specified units, such as pascals (Pa), newtons per square metre (N/m^2), or pounds-force per square inch (psi).

3.2.4 *thickness, n*—the distance between one surface of a material and its opposite.

3.2.4.1 *Discussion*—In textiles, thickness is the distance between the upper and lower surfaces of the material as measured under a specified pressure. It is usually determined as the distance between an anvil or base and a presser foot used to apply the specified pressure.

4. Summary of Test Method

4.1 A specimen is placed on the base of a thickness gage and a weighted presser foot lowered. The displacement between the base and the presser foot is measured as the thickness of the specimen.

5. Significance and Use

5.1 This test method is considered satisfactory for acceptance testing of commercial shipments since current estimates of between-laboratory precision are acceptable, and this test method is used extensively in the trade for acceptance testing.

[1] This test method is under the jurisdiction of ASTM Committee D13 on Textiles and is the direct responsibility of Subcommittee D13.59 on Fabric Test Methods, General.

Current edition approved Feb. 10, 1996. Published April 1996. Originally published as D 1777 – 60 T to replace in part D 39 – 59. Discontinued in November 1995 and reinstated as D 1777 – 96.

[2] *Annual Book of ASTM Standards*, Vol 07.01.

[3] A PC program on floppy disk for analyzing Committee D-13 interlaboratory data are available from ASTM Headquarters. For a 3½-in. disk, request PCN 12-429040-18. For a 5¼-in. disk, request PCN 12-429041-18.

Designation: D 1338 – 99 (Reapproved 2005)

Standard Practice for Working Life of Liquid or Paste Adhesives by Consistency and Bond Strength[1]

This standard is issued under the fixed designation D 1338; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope

1.1 This practice covers two procedures applicable to all adhesives having a relatively short working life. It is intended to determine whether the working life conforms to the minimum specified working life of an adhesive required by consistency tests or by bond strength tests, or by both.

1.2 The values stated in SI units are to be regarded as the standard. The values given in parentheses are for information only.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:* [2]

D 897 Test Method for Tensile Properties of Adhesive Bonds

D 906 Test Method for Strength Properties of Adhesives in Plywood Type Construction in Shear by Tension Loading

D 907 Terminology of Adhesives

D 1002 Test Method for Apparent Shear Strength of Single-Lap-Joint Adhesively Bonded Metal Specimens by Tension Loading (Metal-to-Metal)

D 1084 Test Methods for Viscosity of Adhesives

3. Terminology

3.1 *Definitions*—Many terms in this practice are defined in Terminology D 907.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *working life of an adhesive, n*—the time elapsing between the moment an adhesive is ready for use and the time when the adhesive is no longer usable.

4. Significance and Use

4.1 To determine acceptable working life of an adhesive, two procedures are used. This practice is intended to apply to:

4.1.1 Self-contained liquid or paste adhesives,

4.1.2 Adhesives requiring addition of a catalyst, hardener, filler, thinner, and so forth, or combinations of two or more of these materials just prior to use, and

4.1.3 Powdered or flaked adhesives which are dissolved in water or other solvent and are used as liquid or paste adhesives.

CONSISTENCY PROCEDURE

5. Apparatus

5.1 *Viscometer*—Any means of measuring the viscosity or consistency of the adhesive can be selected, provided that it is suitable for the type of adhesive under test and provided that the results can be expressed in fundamental units.

5.2 *Controlled-Atmosphere Chamber*—Provide an atmosphere of 23 ± 1.1°C (73.4 ± 2°F) and 50 ± 2 % relative humidity. Alternative controlled conditions are permissible, provided the conditions are agreed upon by the purchaser and the manufacturer.

5.3 *Beaker*, of heat-resistant glass,[3] 76 mm (3 in.) in diameter, 102 mm (4 in.) high, and having a capacity of 400 mL.

5.4 *Stirring Rod*, of glass, stainless steel, or other unreactive material.

6. Procedure

6.1 Conduct the consistency test on both the adhesive when freshly prepared and on the adhesive after having been subjected to the working life test.

NOTE 1—An alternative test method to be used with this practice is Test Methods D 1084.

6.2 Precondition the adhesive and all the components at a temperature of 23 ± 1.1°C (73.4 ± 2°F), unless otherwise agreed upon between the purchaser and the manufacturer.

6.3 Start the test when the adhesive and all the components are at a temperature of 23 ± 1.1°C (73.4 ± 2°F), unless

[1] This practice is under the jurisdiction of ASTM Committee D14 on Adhesives and is the direct responsibility of Subcommittee D14.10 on Working Properties.

Current edition approved April 1, 2005. Published April 2005. Originally approved in 1954. Last previous edition approved in 1999 as D 1338 – 96.

[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

[3] Borosilicate glass is suitable for this purpose.

Designation: E566 – 14

Standard Practice for Electromagnetic (Eddy Current) Sorting of Ferrous Metals[1]

This standard is issued under the fixed designation E566; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope
2. Referenced Documents
3. Terminology
4. Summary of Practice
5. Significance and Use
6. Apparatus
7. Procedure
8. Keywords

Designation: A53/A53M – 18

Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless[1]

This standard is issued under the fixed designation A53/A53M; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

This standard has been approved for use by agencies of the U.S. Department of Defense.

1. Scope*

1.1 This specification[2] covers seamless and welded black and hot-dipped galvanized steel pipe in NPS ⅛ to NPS 26 [DN 6 to DN 650] (Note 1), inclusive, with nominal wall thickness (Note 2) as given in Table X2.1 and Table X2.2. It shall be permissible to furnish pipe having other dimensions provided that such pipe complies with all other requirements of this specification. Supplementary requirements of an optional nature are provided and shall apply only when specified by the purchaser.

Note 1—The dimensionless designators NPS (nominal pipe size) [DN (diameter nominal)] have been substituted in this specification for such traditional terms as "nominal diameter," "size," and "nominal size."

Note 2—The term nominal wall thickness has been assigned for the purpose of convenient designation, existing in name only, and is used to designate a class the actual wall thickness, which may vary over or under the nominal wall thickness.

1.2 This specification covers the following types and grades:

1.2.1 *Type F*—Furnace-butt-welded, continuous-welded, Grade A.

1.2.2 *Type E*—Electric-resistance-welded, Grades A and B, and

1.2.3 *Type S*—Seamless, Grades A and B.

Note 3—See Appendix X1 for definitions of types of pipe.

1.3 Pipe ordered under this specification is intended for mechanical and pressure applications and is also acceptable for ordinary uses in steam, water, gas, and air lines. It is suitable for welding and suitable for forming operations involving coiling, bending, and flanging, subject to the following qualifications:

1.3.1 Type F is not intended for flanging.

1.3.2 If Type A or Type E is required for close coiling or cold bending, Grade A is the preferred grade, however, this is not intended to prohibit the cold bending of Grade B pipe.

1.3.3 Type S is furnished either hot-finished or cold-expanded at the option of the manufacturer.

1.4 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in non-conformance with the standard.

1.5 The following precautionary caveat pertains only to the test method portion, Section 7, of this specification. *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

1.6 The text of this specification contains notes or footnotes, or both, that provide explanatory material. Such notes and footnotes, excluding those in tables and figures, do not contain mandatory requirements.

1.7 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 ASTM Standards:[3]

A90/A90M Test Method for Weight [Mass] of Coating on Iron and Steel Articles with Zinc or Zinc-Alloy Coatings

A370 Test Methods and Definitions for Mechanical Testing of Steel Products

[1] This specification is under the jurisdiction of ASTM Committee A01 on Steel, Stainless Steel and Related Alloys and is the direct responsibility of Subcommittee A01.09 on Carbon Steel Tubular Products.

Current edition approved July 1, 2018. Published August 2018. Originally approved in 1924. Last previous edition approved in 2012 as A53/A53M – 12. DOI: 10.1520/A0053_A0053M-18.

[2] For ASME Boiler and Pressure Vessel Code applications see related Specification SA-53 in Section II of that Code.

[3] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

*A Summary of Changes section appears at the end of this standard.

Designation: E1558 – 09 (Reapproved 2014)

Standard Guide for Electrolytic Polishing of Metallographic Specimens[1]

This standard is issued under the fixed designation E1558; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This guide deals with electrolytic polishing as a means of preparation of specimens for metallographic purposes. Procedures are described for polishing a variety of metals.

Note 1—References (1-13)[2] on electrolytic polishing will provide the reader with specific information beyond the scope of this guide.

1.2 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.* Specific safety precautions are described in Section 5 and 6.3.1.

2. Referenced Documents

2.1 *ASTM Standards:*[3]

E7 Terminology Relating to Metallography

E407 Practice for Microetching Metals and Alloys

3. Terminology

3.1 *Definitions*—All terms used in this guide are either defined in Terminology E7 or are discussed in 3.2.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *electrolytic polish (electropolish)*—A method of polishing metals and alloys in which material is removed from the surface by making the metal the anode in an electrolytic bath.

4. Significance and Use

4.1 *Advantages of Electrolytic Polishing:*

4.1.1 For some metals, a high quality surface finish can be produced that is equivalent to, or better than, that which can be obtained by mechanical methods.

4.1.2 Once procedures have been established, satisfactory results can be obtained rapidly with reproducibility.

4.1.3 There can be a marked saving of time if many specimens of the same material are polished sequentially.

4.1.4 Electropolishing a selected area on the surface of a relatively large metal part can be accomplished nondestructively, that is, without the need for sectioning to remove a piece.

4.1.5 Soft, single-phase metals, which may be difficult to polish by mechanical methods, may be successfully electropolished.

4.1.6 The true microstructure of a specimen can be obtained because artifacts (such as disturbed metal, scratches, and mechanical twins) produced on the surface, even by careful grinding and mechanical polishing operations, can be removed. These features are important in low-load hardness testing, X-ray diffraction studies, and in electron microscopy, where higher resolution puts a premium on undistorted metal surfaces.

4.1.7 After electropolishing is completed, etching can often be accomplished by reducing the voltage (generally to about one-tenth that required for polishing) for a short time before it is turned off.

Note 2—Not all electropolishing solutions produce good etching results.

4.2 *Disadvantages of Electrolytic Polishing:*

4.2.1 Many of the chemical mixtures used in electropolishing are poisonous or dangerous if not properly handled (see Section 5). These hazards are similar to those involved in the mixing and handling of etchants, see Test Methods E407.

4.2.2 In multi-phase alloys, the polishing rate of each phase may be different. The result may be a non-planar surface.

4.2.3 Electropolished surfaces may be slightly undulated rather than perfectly planar and, therefore, may not be suitable for examination at all magnifications.

4.2.4 The rate of polishing in areas adjacent to various inhomogeneities, such as nonmetallic inclusions and voids, is usually greater than that in the surrounding matrix and tends to exaggerate the size of the inclusions and voids.

[1] This guide is under the jurisdiction of ASTM Committee E04 on Metallography and is the direct responsibility of Subcommittee E04.01 on Specimen Preparation.

Current edition approved Oct. 1, 2014. Published December 2014. Originally approved in 1993. Last previous edition approved in 2009 as E1558 – 09. DOI: 10.1520/E1558-09R14.

[2] The **boldface** numbers in parentheses refer to the references at the end of this standard.

[3] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

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Heat Treatment Heat treatment is not a mandatory requirement except for flanges above Class 300, flanges of special design where the design pressure or design temperature are not known and for items over 4¢ÂÂÂ NPS and above Class 300. If the forging was not previously heat treated, the original tempering temperature was exceeded, or the forging was fully heat treated in the post weld cycle, then the forging shall be tested in accordance with Section 7 on completion of the cycle. 7.4.3 Testing shall be in accordance with Test Methods and Definitions A370. B Copyright by ASTM Int'l (all rights reserved); Thu Jun 24 04:29:11 EDT 2010 2 Downloaded/printed by Daniel Tam (Luda Development Ltd.) pursuant to License Agreement. instead of one test from each heat in each heat-treatment charge. [0.8-mm] decrease in wall thickness. Included are flanges, fittings, valves, and similar parts ordered either to dimensions specified by the purchaser or to dimensional standards such as the MSS, ASME, and API specifications referenced in Section 2. S2.4 In addition to the marking required by Section 13, this specification shall be followed by the letter: A for annealed, N for normalized, NT for normalized and tempered, or QT for quenched and tempered, as appropriate. All forgings not within the specified hardness range shall be rejected. TABLE 1 Chemical Requirements NOTE¢ÂÂÂFor each reduction of 0.01 % below the specified carbon maximum (0.35 %), an increase of 0.06 % manganese above the specified maximum (1.05 %) will be permitted up to a maximum of 1.35 %. [1¢ÂÂÂ2 h/25.4 mm] of maximum section thickness, or alternatively annealed, normalized and tempered, or quenched and tempered. Failure to comply with the requirements of Specification A961/A961M constitutes nonconformance with this specification. 1.5 The values stated in either SI units or Units must be considered separately as a standard. When only one forging is produced, it must be tested in two positions. 11. ASTM INL Copyright (all rights reserved); Thu 24 June 04:29:11 EdT 2010 3 Downloaded/printed by Daniel Tam (Luda Development Ltd.) based on the license contract. Or a length of 50 mm caliber or sample of small size proportionally with the length of the caliber equal to 4D is used for strip tests, a deduction for every 1 â € Ž32 inches. The welding of these components can be welded. No further authorized reproduction. The designation of the specifications included in the tests of the tests must include the date of the year and the revision letter, if present. The test sample material must be included with a charge of the oven. 10.3 All conflicts sheltered from the welding must be treated with post-shaped heat between 1100 ã ¢ â ° F [593 ã ¢ Â ° C] and the lower transformation temperature for a minimum of 1 â € Ž2 h/in. 5 Available at the American Society of Mechanical Engineers (ASME), ASME International Headquarters, Tre Park Avenue, New York, NY 10016-5990, http: // www.asme.org. 7 For the definition of the 300 class, see ASME B16.5. 8 For the definition of special class, see ASME B16.34. O 50 mm, %and t = actual thickness of the sample, in. S4.2 Determine the equivalent of carbon (EC) as follows: ce 5 c 1 mn/6 1 ~ cr 1 mo 1 v!/5 1 ~ ni 1 cu! be agreed between the supplier and the buyer. 5. Composition of the chemical composition element %, note C carbon, note A, B Molybdenum .12 Max, Note A, B Vanadio .08 Max, Note A Note A - The sum of copper, nickel, chromium, molybdenum and vanadium It must not exceed 1.00% of the note B ã ¢ âvelop â € œThe sum of chromium and molybdenum must not exceed 0.32% of the note C - for each reduction of 0.01% to the specified carbon maximum (.35%), an increase of 0.06% of manganese above the specified maximum will be permitted up to a maximum of 1.65% Mechanical Properties Tensile 70 ksi, min Yield, note A 36 ksi, min Elongation in 2in, Basic minimum for wall 5/16¢ÂÂ³Â and over, strip test 30% Hardness 187 HBW max Note A ¢ÂÂÂ Determined by either the 0.2% offset method or the 0.5% extension-under-load method. ASTM International takes no position respecting the validity of any patent rights asserted in connection with any item mentioned in this standard. Chemical Composition 6.1 The steel shall conform to the chemical requirements specified in Table 1. A105/A105M ¢ÂÂÂ 10 12.2 Test Reports¢ÂÂÂWhen test reports are required, the manufacturer shall also provide the following, where applicable: 12.2.1 Type heat treatment, Section 5, 12.2.2 Tensile property results, Section 7 (Table 2), report the yield strength and ultimate strength, in ksi [MPa], elongation and reduction in area, in percent; and, if longitudinal strip tension specimens are used, report the width of the gage length, 12.2.3 Chemical analysis results, Section 6 (Table 1). The values stated in each 1 This specification is under the jurisdiction of ASTM Committee A01 on Steel, Stainless Steel and Related Alloys and is the direct responsibility of Subcommittee A01.22 on Steel Forgings and Wrought Fittings for Piping Applications and Bolting Materials for Piping and Special Purpose Applications. General Requirements 4.1 Product furnished to this specification shall conform to the requirements of Specification A961/A961M, including any supplementary requirements that are indicated in the purchase order. The gage length for measuring elongation shall be four times the diameter of the test section. The bar coding system, if applied at the discretion of the supplier, should be consistent with one of the published industry standards for bar coding. ASTM A105 (also known as ASME SA 105) covers seamless forged carbon steel piping components for use in pressure systems at ied otnecrep onu'L .oiacca'd errab ertla onorpoc 696A e M576A/576A oiacca ni ehcificeps e ittilfnoc irtla erpoC M662A/662A ehcificepS 3.1 .otacilppa etnemlaiznatsos gat nu o allesac alla otacilppa eresse ²Âup errab a ecidoc li ,itrap eloccip us otazzilitu eS .italoclac iminim irolav i rep 3 allebaT al eredeV C .avorp id otroppar len otacidni eresse eved ,tset id itouv izaps o itaigrof a itaigrof ad itunetto itats onos enoizart id tset ied itatlusir i e tset id itroppar itseihcir onos odnauQ 3.2S .otatset eresse eved erolac ingo ,acirac elat ni erolac nu id ¹Âip osulcni ¨Ã eS .4 .avitatneserppar azzerud al erilibats rep inoizartneir iroiretlu ettaf eresse onossop am ,arutaigrof rep azнartneir anu airassecen Ã .tiehnerhaF idarg 007.1 e tiehnerhaF idarg 055.1 art eradlacsir id amirp tiehnerhaF idarg 000.1 id onem a eradderffar onossop aruttocir id etaigrof itrap eL .aznecil id ottartnoc la esab ni).dtL tnempoleveD aduL(maT leinaD ad otapmats/otaciracS 1 0102 TDE 11:92:40 onguig 42 UHT ;)itavresir ittirid i ittut(l'tnI MTSA ad itinU itatS ilged thgirypoC ,9592-82491 ainavlysnneP ,nekcohohsnoC tseW 007C xoB evirD robraH rraB 001 ,lanoitanretnI MTSA ©Â thgirypoC .idnotor iralpmese rep olos D .itaigrof itnenopmoc id erolac ingo rep azzerud id tset eud itautteffe eresse onoveD 1.4.7 :azzerud id tseT 4.7 .itacilppa idotem i eresse eved eroizarepmet e erengeps ,erazzilamron ,erarpmet e erazzilamron ,erazzilamron ,aruttocir ,ocimret otnemattart li otseihcir ¨Ã odnauQ .ecsirts id tset erazzilitu elibissop ¨Ã , Ätiunitnoc id enoizulos aznes iralobut ilairetam ad etaroval onos ovac ocirdnilic id amrof a itrap el odnauQ .BH 781 e 731 art aserpmoc eresse eved itatset ¬Âsoc itnemaigrof i ittut id azzerud aL .4S .L 0221 ,)IPA(etutitsnI muelorteP naciremA'l osserp ilibinopsid 6 a xam ,bh ,azzerud d% ,nim ,aera id enoizudir id 3 allebat alled ilautnecrep itnup ied esab id ominim otnemagnulla'llad]mm 9,7[.arutarepmet atla da oizivres e For Lotto (see note 2) or ten forged, depending on what the smaller number is, it must be selected at random, prepared and tested using the Standard Brinell test in Methods and definitions A370. If you believe that your comments have not received an equitable hearing, you should let your opinions be known to the ASTM Committee on Standards, at the address below. The results are shown in the same number of significant figures as the limits set out in Table 1 for this item. Your comments will receive careful consideration at a meeting of the technical committee responsible, which you can participate. This rule is subject to review at any time by the responsible technical committee and must be reviewed every five years and, if not revised, reapproved or withdrawn. mm Extension in 2 inches. 10.2 Welding repairs must be carried out through a process that does not produce undesirably high levels of hydrogen in welded areas. Flanges, fittings, valves and various other parts ordered to customer size or industry standards such as MSS, ASME and specific API are included in the application field. Hardness S1.1 The buyer can verify the hardness of any or all forgings provided anywhere on the forged and the hardness must be from 137 to 187 HB. [6.35 mm] diameter or larger (see Test Methods and A370) definitions parallel to the size of the maximum work, and products in unsuitable equipment for the production of a forged test bar separately as an automatic or semiautomatic press, can only be accepted on the basis of the hardness. 7.3.4 Too small forgings to allow a sample of less than 0.250 in. Your comments are invited both for reviewing this standard and for additional standards and must be addressed to the ASTM International headquarters. Last previous edition approved in 2009 as A105/A105M–09. You are reading a free preview page 4 is not shown in this preview. 1.order 3.1 See the Specific A961/A961M. The values indicated in the units or in the thumb units must be considered separately as a standard. Scope* 1.1 This specification 2 covers forged forged carbon tubing components for higher environmental and temperature service in pressure systems. o 50 mm, min, % (0.312) (0.281) (0.250) (0.219) (0.188) (0.156) (0.125) (0.094) (0.062) 7.9 7.1 6.4 5.6 4.8 4.0 3.2 2.4 1.6 30,00 28.50 27.50 22.50 21.00 19.50 18.00 Note-The above table provides the minimum elongation values calculated for each 11.00 7.3.2.1 when heat treatment temperatures are equal and furnaces (batch or continuous type), are controlled within 625 â ° f [614 â ° c] and equipped with recording pyrometers so that complete thermal treatment records are available, so a voltage test from each heat table 2 mechanical tensile strength requirements, minute, psi [mpa] yielding, min, psi [mpa] prior approval of the buyer is required to repair in a special way. failures made to the buyer's requirements. Note 2â€ ”Many is defined as the product from a heat of the mill or if the heat treated, the product of a heat of the mill for loading the furnace. the combination of values of the two systems can result in non-compliance with the standard. 12. these only apply when specified individually by the buyer in the order. in case of conflict between the requirements of this specific and specific A961/A961M, this specification must prevail. when a single forging is produced, it must be tested in two positions to ensure that it is within the limits of hardness shown in Table 2. 10.4 the mechanical properties of the process qualification welding must, if tested in accordance with the ix section of the hot pressure vessel code, comply with the requirements listed in Table 2 for the thermal condition of the welded for repair. an appescriptive epsilon (ã´) indicates an editorial change from the last revision orDownload the complete catalog of the product. [mm]. When Round Standard 2-in. 4 Available at the standardization company of the valve valve manufacturers .itazzilitu onos non obmoip li otnuigga otats ¨Ã ilauq ia iaicca ilG 2.6 .eruticuc aznes iralobut ad etaroval onos avac acirdnilic amrof a itrap el odnauq non es otazzilitu eresse eved 073A inoizinifed ellen e avorp id idotem ien ottircsed emoc elibittaf odnotor eralpmese ednarg ¹Âip II .ni 1 a eroirefni ¨Ã arutacram al rep oizaps ol evod ittodorp iloccip i reP 1.3S erutaigrof eloccip id arutacraM .atatneserppar arutaigrof alled etnemacimret otattart omissam erosseps ol ¨Ã T evod ,adnoforp ¹Âip enoizisop alla o T 4â1 onaip la ednopsirroc avorp id enoipmac led elartnec essa'l ,etarpmet o ,etarpmet e etazzilamron ,etazzilamron erutaigrof reP 2.7 .attircserp enoizisop alla elibissop oniciv ¹Âip li otanoizisop eresse eved avorp id enoipmac li ,otnemanoizisop otseuq etnesnoc non enoizes alled erosseps ol odnauQ .asefiD alled otnemitrapiD led eiznega ad osu'l rep otavorppa otats ¨Ã dradnats otseuQ .6 .7 enoizes allen otacificeps tset li eretepir e elibacilppa emoc itaigrof i erattart eradlacsir o erattart ²Âup erottudorp li ,otacificeps otisiuqer la imrofnoc onos non icinaccem tset ied itatlusir i eS 1.9 oritiR .ni 2 ni otnemagnulla = E :evod 00.51 1 T84 5 E :enoizauqe etneuges allad otanimreted ¨Ã otnemagnulla id ominim erolav li ,itacidni arpos irolav eud art avort is eterap alled erosseps ol eS .atattartomret eicifrepus adnoces isaislaug ad T onemla eresse eved avorp id enoipmac led aidem azzehgnul al ,dehcneuq e itarepmet itnemaigrof i rep ,ertlonI .azneciL id ottartnoC led isnes ia).dtL tnempoleveD aduL(maT leinaD ad detnirp/dedaolnwoD 4 0102 TDE 11:92:40 42 nuJ uhT ;)itavresir ittirid i ittut(l'tnI MTSA id thgirypoC .2 .âelanimon enoisnemidâ e â,enoisnemidâ â,elanimon ortemaidâ emoc ilanoizidart inimret rep dradnats otseuq ni otiutitsos otats ¨Ã)obut led elanimon enoisnemid(SPN inoisnemid aznes erotangised lI â 1 ATON .1S .moc.qhssm.www//:ptth ,2064-08122 AV ,anneiV ,EN ,.tS kraP 721 ,)SSM(inoizallatsni elled airtsudnI decrease in wall thickness under 516 in. Copyright of ASTM Int'l (all rights reserved); Thu Jun 24 04:29:11 EDT 2010 5 5By Daniel Tam (Luda Development Ltd.) under the license agreement. Product marking 13.1 If forgings have been turned off and tempered, the letters â€ œQt "must be stamped on forged following this number of specifications. 10. 2 For applications ASME Pressure Vase Code and related specifications SA-105 in Section II of that code. 8. or 50 mm, min., %: minimum length for walls 5â „16 inches. 70 000 [485] 36 000 [250] 30 1.50c 30 187 For small conflicts, see 7.3.4. Determined by the 0.2 % offset method or the 0.5 % extension loading method. Other test methods available as listed in A105. A105/A105M â€ "10 Table 3 Minimum values calculated Wall Thickness â 9â „32 1â´ 4 7â „32 3´ 16 5â „32 1â´ 8 3 „32 1â´´ 16 5 16 inch. [7.9 mm] and thickness, strip tests. (Approved on 1 July 2009) (1) Reviewed 7.4 to clarify the test requirements of hardness. 12.2.4 Hardness results, Section 7 (Table 2), a minimum of two readings and 12.2.5 any additional tests required by the purchase order. Forgeds made to this specification are limited to a maximum weight of 10,000 pounds [4540 kg]. The buyer may verify that the requirement was met by the tests in any position on the forging, provided that such tests do not make forging useless. S3. 13.2 Welded conflicts must be marked with the letter â€ œW " following this number of specifications. (Approved on 1 May 2010) (1) Revised 12.2.3 on the chemical reporting. 3.1.1 Additional requirements (see 12.2). The number of specifications marked on the trainings should not include the date of the year of the specifications and the letter of review. A105/A105M - 10 SUMMARY OF CHANGES The A01 Committee has identified the position of the changes selected to this specification from the lastA105/A105M - 09, which may affect the use of this specification. Keywords 14.1 Fittings for pipes, steel; pipe applications;

pressure containing parts; Steel flanges; Steel, carbon; carbon;valves; high temperature service applications; temperature service applications, high SUPPLEMENTAR requirements The following additional requirements apply only when specified by the buyer in the investigation, contract and order. However, unless the order specifys the applicable specific name "M" (S-unit), the material must be supplied to thumb units. Forgings to this specification are limited to 10,000 lbs. A number in parentheses indicates the year of the last reapproval. Cable cylindrical pipes and forgings for pressure vessels shells are not included within this specification. 13. Thermal treatment 5.1 Thermal treatment is not a mandatory requirement of this specification, except for the following pipe components: 5.1.1 Flanges above class 300,7 5.1.2 Special design flanges where design pressure at design temperature exceeds class 300 temperature-pressure values, Group 1.1, 5.1.3 Special design flanges where design pressure or design temperature are not known, 5.1.4 Pipe components other than flanges that meet both the following criteria: (1) on NPS 4 and (2) above class 300, and 5.1.5 Special Class8 pipe components other than flanges that meet both the following criteria: (1) on NPS 4 and (2) when working pressure at operating temperature exceeds the tabulate values for Special Class 300, Group 1.1. 5.2 Thermal treatment, when required within 5.1 must be replenished, normalized, or normalized, tempered and tempered in accordance with the A961/A961M specification. Reference documents A266/A266M Specification for carbon steel forgings for A675/A675M pressure steel components Specification for steel bars, carbon, hot, special quality, mechanical properties A696For steel bars, carbon, hot or cold, special quality, for pressure pipe components A788/A788m A788/A788m For steel conflicts, General Requirements A961/A961M Specific for common requirements for steel flanges, forged fittings, valves and parts for applications of standard mSS pipes - Standard SP 44 for the flags of steel pipes B16.5 dimensional standards for flange of steel pipes and flanged fittings B16.9 adapted in steel beaten in steel B16.11 forged steel fittings, socket welding and thread B16.34 floated valves, threaded and welding approved by the standardization company of the valve manufacturers and fittings producers Used in the USDOE-NE STANDARDS Designation designation: A105/A105m ã ¢ âvelop standard specifications for carbon steel forms for pipes applications1 This standard is issued pursuant to the fixed designation A105/A105m; The number immediately following the designation indicates the year of the original adoption or, in the case of the revision, the year of last revision. B The sum of chromium and molybdenum must not exceed 0.32 %. 7.3 Voltage test: 7.3.1 A voltage test must be carried out for each heat of forged components. Certification 12.1 Identification marking - For confinges made to specific dimensions, when agreed by the buyer, and for the forms made to the dimensional standards, the application of the identification signs as required in the specifications A961/A961M must be the certification was provided in which forgiveness were provided in compliance with the requirements of this specific. Reference documents 2.1 In addition to those reference documents listed in the A961/A961M specifications, the following list of standard applies to this specific: 2.2 ASTM standard: 3 A266/A266m specific for carbon steel conflicts for the components of the vase of pressure A370 Test methods and definitions for mechanic test of products in A675/A675m steel Products specific for enoisserp enoisserp a inoizabut rep ,elaiceps Ātilauq ,odderf a o odlac a ,oinobrac ,oiaicca ni errab rep ehcificepS 696A ehcinaccem Āteirporp ,elaiceps Ātilauq ,dewawwtoh ,oinobrac ,oiaicca'd A788/A788M Specification for Steel Forgings, General Requirements A961/A961M Specification for Common Requirements for Steel Flanges, Forged Fittings, Valves, and Parts for Piping Applications 2.3 MSS Standards: SP 44 Standard for Steel Pipe Line Flanges4 2.4 ASME Standards: B16.5 Dimensional Standards for Steel Pipe Flanges and Flanged Fittings5 B16.9 Wrought Steel Buttwelding Fittings5 3 For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at [emailÂ Åprotected] For Annual Book of ASTM Standards volume information, refer to the standard¢ÃÂÂs Document Summary page on the ASTM website. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Current edition approved May 1, 2010. 13.3 When test reports are required for larger products, the markings shall consist of the manufacturer¢ÃÂÂs symbol or name, this specification number, and such other markings as necessary to identify the part with the test report (13.1 and 13.2 shall apply). Element Composition, % Carbon Manganese Phosphorus Sulfur Silicon Copper Nickel Chromium Molybdenum Vanadium 0.35 max 0.60¢ÃÂÂ1.05 0.035 max 0.040 max 0.10¢ÃÂÂ0.35 0.40 maxA 0.40 maxA 0.30 maxA,B 0.12 maxA,B 0.08 max A The sum of copper, nickel, chromium, molybdenum and vanadium shall not exceed 1.00 %. 13.4 Bar Coding¢ÃÂÂIn addition to the requirements in Specification A961/A961M and 13.3, bar coding is acceptable as a supplemental identification method. St., NW, Washington, DC 20005-4070, . 7. S3.2 When the configuration or size does not permit marking directly on the forging, the marking method shall be a matter of agreement between the manufacturer and the purchaser. 7.4.2 Except when only one forging is produced, a minimum of two forgings shall be hardness tested per batch or continuous run as defined in 7.3.2.1 to ensure that forgings are within the /gro.mtsa.www(etisbew MTSA eht morf deruces eb osla yam dradnats eht ypocotohp ot sthgir noissimreP .deifiton rerutcafunam eht dna detcejer eb llahs noitacilppa ro gnikrow pohs gnirud stcefed suoirujni spoleved taht gnigrof hcaE 1.11 gniraeheR dna noitcejeR .resahcrup eht yb deificeps sa detaert taeh eb llahs sgnigrof llA 1.2S tnemtaerT taeH .3 6esU yrenifeR rof sevlaV etaG leetS nobraC ngiseD tcapmoC 206-IPA 6sevlaV etaG leetS dnE-gnidleW-ttuB dna degnalF 006-IPA :sdradnatS IPA 6.2 5snoitacifilauQ gnidleW XI noitceS :edoC lesseV erusserP dna relioB EMSA 5.2 5segnalF leetS retemaiD egraL 74.61B 5dnE gnidleW dna dedaerhT ,degnalF-sevlaV 43.61B 5dedaerhT dna ,dleW tekcoS ,sgnittiF leetS degroF 11.61B 5sevlaV suorreF fo snoisnemiD dnE-ot-dnE dna ecaF-ot-ecaF 01.61B 01 Â € Ã ¢ M501A/501A .stroper TSet HTIW Strap EHT YFITNEDI ot Yrassecen Era Sa Sedoc ro slobmys hcus ylno ot detcirtser eb yam gnikram DNA yrotadnam era stroper teenag era ,sthgir hcus fo tnemegnirfni fo ksir eht dna ,sthgir tnetap hcus yna fo ytidilav eht fo noitanimreted taht desivda ylsserpxe era dradnats siht fo sresU .deificeps si 169A MTSA fo 75S latnemelppuS nehw ylno erutcafunam gnigrof eht yb detcudnoc eb llahs tseT citatsordyH tseT citatsordyH . stinu IS dna stinu dnuop-hcni htob ni desserpxe si noitacificeps sihT 4.1 .noitacificeps siht fo esu eht tcapmi yam taht ,50ÂÃ¢M501A/501A ,eussi tsal eht ecnis noitacificeps siht ot segnahc detceles fo noitacol eht deifitnedi sah 10A eettimmoC .swollof gnilooc ecanruf wolS .egrahc gnitaert-taeh hcae morf edam eb llahs tset noisnet enO 2.3.7 .rerutcafunam eht yb kcots rof edam strap rehto rof ro EMSA fo esoht sa hcus sdradnats lanoisnemid ot edam sgnigrof rof elbissimrep si rerutcafunam eht yb stcefed fo riaper 1.01 gnidlew yb riaper .073a snotinified dna sdohtem tset htiw ecnadrocca ni demrofrep eb llahs gnitset 3.3.7 .2 Elbat ni nevig stimil Individual reprints (single or multiple copies) of this standard can be obtained by contacting astm at the address indicated above or at 610-832-9585 (phone), 610-832-9555 (fax), or (e-mail); or via the astm site (www.astm.org). forging this alloy is forged between 1,700 degrees fahrenheit and 2,200 degrees fahrenheit, followed by quenching and tempera. s2. Larger forgings can be ordered to the specific A266/A266M. (2) revised 12.2.4 to clarify the number of hardness results needed to be reported. carbon equivalent S4.1 the maximum carbon equivalent, based on heat analysis, is 0,47 for forgings with a maximum section of 2 in. welding procedures must comply with the ix section of the safety code asme boiler and pressure vessel. Ix.

The New England Journal of Medicine provides a collection of articles and other resources on the Coronavirus (Covid-19) outbreak, including clinical reports, management guidelines, and commentary.; The Lancet has created a Coronavirus Resource Centre with content from across its journals - as it is published.; Nature has granted free to access to the latest available COVID ... Home >> Tipped PCD inserts. Tipped pcd turning and milling inserts polycrystalline diamond inserts with brazed pcd cutting edges: Advantage of tipped pcd inserts over full faced pcd inserts is the lower cost, tipped insert is one use only economical type, it requires a carrier like tungsten carbide base as substrate for the insert, and substrate have a pocket that will accommodate ... Exploiting the uniqueness of the soloMERTM technology for the development of next-generation, super-potent drug modalities for chronic autoimmune inflammation diseases, and beyond - ... Trend Hunter's long-awaited 2022 Trend Report research is ready -- and this year it's free! You can get our 2022 Trend Report HERE. Here's my intro letter about why the 2022 Trend Report is more important than in past years: The next couple years will present you ... Subaru's EJ251 and EJ252 were 2.5-litre horizontally-opposed (or 'boxer') four-cylinder petrol engines. For Australia, the EJ251 engine was first introduced in the Subaru BE/BH Liberty in 1998 and subsequently offered in the BH Outback, GD/GG Impreza RS and Subaru SG Forester. For the Subaru BL/BP Liberty and BP Outback, the EJ251 was replaced by the EJ252 engine. Subaru's EE20 engine was a 2.0-litre horizontally-opposed (or 'boxer') four-cylinder turbo-diesel engine. For Australia, the EE20 diesel engine was first offered in the Subaru BR Outback in 2009 and subsequently powered the Subaru SH Forester, SJ Forester and BS Outback.The EE20 diesel engine underwent substantial changes in 2014 to comply with Euro 6 emissions standards – ...

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