



**Summary of Substantive Changes
between the 2020 and the 2022 editions of
ASTM A53/A53M “Pipe, Steel, Black and Hot-Dipped,
Zinc-Coated, Welded and Seamless”**

Presented to the IAPMO Standards Review Committee on January 9, 2023

General: The change to this standard may have an impact on currently listed products. The substantive changes are:

- The type of pipe such as “electric-resistance-welded” has been replaced by the pipe type “Type E”.
- Sections have been updated to be more inclusive of type and grade.

Section 1, Scope:

1.2.1 *Type F—Furnace-butt-welded, continuous welded Grades A and B*

1.3.2 *If ~~Type S or Type E~~ When pipe 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.*

Section 4, Materials and Manufacture:

4.3 *The weld seam of ~~electric-resistance-welded~~ Type E or Type F pipe in Grade B shall be heat treated after welding to a minimum of 1000 °F [540 °C] so that no untempered martensite remains, or otherwise processed in such a manner that no untempered martensite remains.*

Section 7, Mechanical Properties:

7.3.3 *~~Electric-Resistance-Welded~~ Type E, Grades A and B; and Type F Grade B Pipe:*

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7.3.4 *~~Continuous-Welded~~ Type F Grade A Pipe*

Section 8, Hydrostatic Test:

8.3 *The minimum hydrostatic test pressure required to satisfy the requirements specified in 8.2 need not exceed 2500 psi [17 200 kPa] for pipe NPS 3 [DN 80] or smaller, or 2800 psi [19 300 kPa] for pipe larger than NPS 3 [DN 80]; however, the manufacturer has the option of using higher test pressures.*

For all sizes of ~~seamless pipe and electric-resistance-welded~~ Type S, Type E, and Type F Grade B pipe, the hydrostatic test pressure shall be maintained for at least 5 s.

Section 9, Nondestructive Electric Test:

9.1 *Type E and Type F Grade B Pipe:*

9.1.1 *Except for pipe produced on a hot-stretch reducing mill, the weld seam of each length of ~~electric-resistance-welded~~ Type E and Type F Grade B pipe NPS 2 [DN 50] or larger shall be tested with a nondestructive electric test in accordance with Practices E213, E273, E309, or E570. Each length of electric-resistance welded pipe NPS 2 [DN 50] or larger and produced on a hot-stretch-reducing mill shall be tested with a nondestructive electric test that inspects the full volume of the pipe in accordance with Practices E213, E309, or E570.*



Section 13, Number of Tests:

13.1 Except as required by 13.2, one of each of the tests specified in Section 7 shall be made on test specimens taken from one length of pipe from each lot of each pipe size. For ~~continuous-welded~~ Type F grade A pipe, each lot shall contain no more than 25 tons [23 Mg] of pipe for pipe sizes NPS 11/2 [DN 40] and smaller, and no more than 50 tons [45 Mg] of pipe for pipe sizes larger than NPS 11/2 [DN 40]. For ~~seamless and electric-resistance-welded~~ Type S, Type E, and Type F grade B pipe, a lot shall contain no more than one heat, and at the option of the manufacturer shall contain no more than 500 lengths of pipe (as initially cut after the final pipe-forming operation, prior to any further cutting to the required ordered lengths) or 50 tons [45 Mg] of pipe.

13.2 The number of flattening tests for ~~electric-resistance-welded~~ Type E and Type F grade B pipe shall be in accordance with 7.3.3.2 or 7.3.3.3, whichever is applicable.

Section 14. Retests

14.1 Except for flattening tests of ~~electric-resistance-welded~~ Type E and Type F grade B pipe, if the results of a mechanical test for a lot fail to conform to the applicable requirements specified in Section 7, the lot shall be rejected unless tests of additional pipe from the affected lot of double the number originally tested are subsequently made and each such test conforms to the specified requirements. Only one retest of any lot will be permitted. Any individual length of pipe that conforms to the test requirements is acceptable. Any individual length of pipe that does not conform to the test requirements may be resubmitted for test and will be considered acceptable if tests taken from each pipe end conform to the specified requirements.

14.2 ~~Electric-resistance-welded~~ Type E and Type F Grade B Pipe Produced in Single Lengths—If any flattening test result fails to conform to the requirements specified in 7.3.3, the affected single length shall be rejected unless the failed end is subsequently retested using the same weld orientation as the failed test and a satisfactory test result is obtained before the pipe's length is reduced by such testing to less than 80 % of its length after the initial cropping.

14.3 ~~Electric-resistance-welded~~ Type E and Type F Grade B Pipe Produced in Multiple Lengths—If any flattening test result fails to conform to the requirements specified in 7.3.3, the affected multiple length shall be rejected or flattening tests shall be made using a test specimen taken from each end of each individual length in the failed multiple length. For each pipe end, such tests shall be made with the weld alternately at 0° and 90° from the line of direction of force. Individual lengths are considered acceptable if the test results for both pipe ends conform to the specified requirements.

Section 20, Certification:

20.2 Test Report—For Types E ~~and~~ S, and Type F Grade B, the manufacturer or supplier shall furnish to the purchaser a chemical analysis report for the elements given in Table 1.

Table 1 was revised to add requirements for Grade B for Type F pipe.