ASTM A790 S32750 (2507) Technical Datasheet

Prepared from ASTM A790/A790M-24

1. Basic designation

Standard	UNS designation	Type / common name	Product forms	Scope
ASTM A790/A790M-24	S32750	2507	Seamless / straight-seam welded pipe	General corrosive service, with particular emphasis on stress corrosion cracking resistance

2. Chemical composition (%)

C	Mn	P	S	Si	Ni	Cr	Mo	N	Cu
≤0.030	≤1.20	≤0.035	≤0.020	≤0.80	6.0–8.0	24.0–26.0	3.0–5.0	0.24–0.32	0.5
Other / notes									
PREN condition per note D: %Cr + 3.3×%Mo + 16×%N ≥ 41									

3. Heat treatment requirements

Temperature	Quench / cooling	Ordering / manufacture note
1880–2060 °F [1025–1125 °C]	Rapid cooling in water or by other means	Unless otherwise stated in the order, all pipe shall be furnished in the heat-treated condition shown in Table 1.

4. Tensile and hardness requirements

Condition / thickness range	Tensile strength min, ksi [MPa]	Yield strength min, ksi [MPa]	Elongation min, %	HBW max	HRC max
Standard	116 [800]	80 [550]	15	300	32

5. Standard inspection and testing requirements

Requirement	Details
Product analysis (when requested by purchaser)	One billet or one length of flat-rolled stock from each heat, or two pipes from each lot. Lot size: under NPS 2 = 400 lengths max; NPS 2 to 5 incl = 200 max; NPS 6 and over = 100 max.
Tension test	One specimen for lots of not more than 100 pipes; two specimens from two pipes for lots of more than 100 pipes.
Flattening test	For batch heat-treated pipe: 5% of the pipe from each heat-treated lot. For continuous or direct-quenched pipe: enough pipes to constitute 5% of lot, minimum two lengths.
Alternative bend test for welded pipe	A transverse guided face bend test of the weld may be used instead of flattening. If specified wall thickness ≥ 3/8 in. [9.52 mm], two side bend tests may be used instead.
Hardness test	Brinell or Rockwell hardness tests on specimens from two pipes from each lot.
Hydrostatic or nondestructive electric test	Each pipe shall be subjected to the nondestructive electric test or the hydrostatic test, at manufacturer's option unless otherwise specified by purchaser.
Hydrostatic test basis	Per ASTM A999/A999M, except S used in pressure calculation = 50% of specified minimum yield strength of the pipe.
NDE methods	Practices E213 or E309. As an alternative when specified by purchaser, each pipe may be examined by NDE in lieu of hydrostatic test.
Weld repair	Weld repair with filler is permitted for welded pipe NPS 6 and larger with nominal wall thickness 0.188 in. [4.8 mm] and over; repairs limited to 20% of seam length and must be completed prior to heat treatment.

6. Dimensional / tolerance requirements

Item	Requirement
Dimensional basis	Appendix X1.1 lists standard stainless steel pipe dimensions based on ANSI B36.19 schedules 5S, 10S, 40S, and 80S.
Pipe with other dimensions	Pipe having other dimensions may be furnished provided all other requirements of ASTM A790/A790M are satisfied.
Permitted variation in wall thickness	The wall thickness for seamless and welded pipe at any point shall be within the tolerances specified in ASTM A999/A999M; for welded pipe, the weld area is not limited by the "Over" tolerance.
Inspection basis for pipe ordered by NPS and schedule	The wall thickness and outside diameter for inspection for compliance are shown by Table X1.1.
Lengths, random	Unless otherwise agreed, sizes NPS 1/8 through NPS 8 are available in lengths up to 24 ft with permissible range 15 to

	24 ft.
Lengths, cut lengths	No pipe shall be less than the specified length and no more than 1/4 in. [6 mm] over it.
Jointers	No jointers are permitted unless otherwise specified.

7. Filler metal listed in ASTM A790 Table 4

AWS A5.9 class	UNS designation / note
No grade-specific filler listed in ASTM A790 Table 4	Use compatible or purchaser-approved higher alloy filler for weld repair per Section 15

8. Supplementary requirements (when specified in purchase order)

Supplementary requirement	Summary
S1 Product analysis	Additional product analysis frequency when specified in PO.
S2 Transverse tension tests	One transverse tension test from one end of 10% of lengths furnished per heat; applies only to pipe over NPS 8.
S3 Flattening test	Flattening test on specimen from one or both ends of each pipe, as specified.
S4 Etching tests	Etching tests per ASTM E381 on cross section from one or both ends of each pipe.
S5 Radiographic examination	Entire length of weld in each double-welded pipe radiographically examined.
S6 Intergranular corrosion test	For material susceptible to intermetallic phases, purchaser may specify additional tests under A923 methods as appropriate.

9. Purchase order description example

Example wording
ASTM A790/A790M, UNS S32750 (2507), seamless or welded ferritic/austenitic stainless steel pipe, NPS 6, Schedule 40S, random length 6 m, heat treated per Table 1, hydrostatic test or NDE electric test, certification EN 10204 3.1, supplementary requirements as specified.