

ASTM A53 Grade B – Type F

Frequently Asked Questions

What are the different manufacturing methods for producing ASTM A53 standard pipe?

Type F (Continuous Furnace Welded - CW)
 Type E (Electric Resistance Welded - ERW)
 Type S (Seamless)

All Types can be certified to Grade A or Grade B.

What is the difference between ASTM A53 Grade A and Grade B?

ASTM Grade B has higher mechanical requirements, different chemical composition, and higher test pressures than Grade A. Grade B meets and exceeds all of the properties of Grade A.

A53 Mechanical Requirements		
	Grade A	Grade B
Minimum Yield Strength (psi)	30,000	35,000
Minimum Tensile Strength (psi)	48,000	60,000

A53 Chemical Requirements									
Composition (max %)									
	Carbon	Manganese	Phosphorus	Sulfur	Copper	Nickel	Chromium	Molybdenum	Vanadium
Type F (Continuous Furnace Welded)									
Grades A & B	0.30	1.20	0.05	0.045	0.40	0.40	0.40	0.15	0.08
Type E (Electric Resistance Welded)									
Grade A	0.25	0.95	0.05	0.045	0.40	0.40	0.40	0.15	0.08
Grade B	0.30	1.20	0.05	0.045	0.40	0.40	0.40	0.15	0.08
Type S (Seamless)									
Grade A	0.25	0.95	0.05	0.045	0.40	0.40	0.40	0.15	0.08
Grade B	0.30	1.20	0.05	0.045	0.40	0.40	0.40	0.15	0.08

A53 Dimensions and Test Pressures for Plain-End Pipe

Nominal Pipe Size (inches)	Specified Outside Diameter (inches)	Specified Wall Thickness (inches)	Weight Class	Schedule	Minimum Test Pressure (psi)	
					Grade A	Grade B
1/2	0.840	0.109	STD	40	700	700
		0.147	XH	80	850	850
3/4	1.050	0.113	STD	40	700	700
		0.154	XH	80	850	850
1	1.315	0.133	STD	40	700	700
		0.179	XH	80	850	850
1-1/4	1.660	0.140	STD	40	1,200	1,300
		0.191	XH	80	1,800	1,900
1-1/2	1.900	0.145	STD	40	1,200	1,300
		0.200	XH	80	1,800	1,900
2	2.375	0.154	STD	40	2,300	2,500
		0.218	XH	80	2,500	2,500
2-1/2	2.875	0.203	STD	40	2,500	2,500
		0.276	XH	80	2,500	2,500
3	3.500	0.216	STD	40	2,220	2,500
		0.300	XH	80	2,500	2,500
3-1/2	4.000	0.226	STD	40	2,030	2,370
4	4.500	0.237	STD	40	1,900	2,210
		0.337	XH	80	2,700	2,800

What is the difference between SureThread™ and CW?

Wheatland Tube has adopted SureThread as the trade name for their CW - Type F standard pipe. The continuous furnace welded manufacturing process creates a pipe that has a uniform grain structure and eliminates hard spots in the body of the pipe. This process results in a pipe that has improved machinability and is superior to an ERW pipe for threaded applications.

What are some of the key quality improvements that Wheatland has done on their SureThread Pipe?

Wheatland was subjected to a number of third party tests and implemented systematic manufacturing changes to substantiate their application to ASTM for Grade B certification on their Type F process.

- In-house transverse tensile testing & vertical compression testing
- Third party weld evaluation through pipe burst testing
- Metalurgical evaluation on raw material
- Additional testing resulting in UL listing & FM approval
- Construction of a new Quality Lab at the mill
- Mill Operator training & education
- Introduction of a new UV coating
- Listed as the only domestic mill in the Uniform Plumbing Code (UPC) for use in natural gas applications

What does Wheatland continue to do to ensure ongoing weld integrity on their A53B Type F pipe?

Throughout every rolling, Wheatland performs in-line hydrostatic and eddy current testing. At set-up, and at timed intervals during each rolling, Wheatland roll grooves pipe samples and performs cross-sectional microanalysis on the weld zone. In addition to non-destructive tests, Wheatland performs tensile tests and flattening tests on samples from every rolling.

What sizes are available as Type F?

All sizes that were previously produced as Grade A are being transitioned to Grade B. Specifically, ½” through 4” nominal pipe sizes in schedule 40 and schedule 80.

Additionally, Wheatland is UL listed & FM approved to produce a number of Sch 10 sizes to meet ASTM A795 on the CW mill.

What end treatments are available on ASTM A53 Grade B - Type F pipe?

Wheatland can supply plain-end and threaded material off the CW mill. In-line grooving capabilities are coming soon.

What finishes are available on ASTM A53 Grade B - Type F pipe?

ASTM A53 Grade B - Type F pipe can be supplied from Wheatland as bare, galvanized, or coated with our new Ultra Z-Coat™ black coating. Ultra Z-Coat is cured under ultra-violet light, resulting in a robust coating that provides ultimate protection against corrosion and handling damage.

What update did ASTM make to the A53 specification on galvanizing?

Section 17.1 of the A53 specification states that “*the galvanized pipe shall be free from uncoated areas, blisters, flux deposits, and gross inclusions.*”

Wheatland Tube is the only pipe mill in North America with in-house galvanizing capabilities for all sizes through 6” NPS. Every piece is blown out with high-pressure steam to ensure that the inside of the pipe has a consistent coating, is free of all debris, and that the pipe meets spec.

What does the A53 Grade B Type F specification change mean for distributors and contractors?

The A53 Grade B certification is an important upgrade to Wheatland’s SureThread pipe.

- Contractors can submit Type F as an equivalent alternative on any spec that calls for ASTM A53 Grade B, regardless of manufacturing type
- Distributors no longer have the need to carry dual inventory in both Grade A and Grade B
- Wheatland offers industry leading availability by maintaining a 2 week rolling cycle on all sizes ½” – 4”
- The Type F manufacturing process ensures that Wheatland’s Grade B Surethread pipe maintains its advantage for threaded applications
- Stringent testing confirms weld integrity when grooving, bending, or pressing
- Ultra Z-Coat provides superior protection for outside storage and reduces prep time when attaching carbon press-fittings

Please contact your Wheatland Sales Representative with any additional questions.