

## JIS G3442 Galvanized Steel Pipes for Water Service

### 1. Scope

This Standard specifies the galvanized steel pipe to be used mainly for water service at the head of 100m, hereinafter referred to as the "pipe".

### 2. Classification and Symbol

The pipe shall be of the following one class and its symbols shall be as given in Table 1:

Table 1 Class Symbols

Class	Symbol
Galvanized steel pipe for water service	SGPW

World Standard Comparative Table

KS		ASTM		JIS	
Standard number	GRADE	Standard number	GRADE	Standard number	GRADE
D 3537	SPPW	A 53	Type F	G-3442	SGPW

### 3. Zinc Coating Characteristic

The zinc coating characteristic of pipe shall be as follows:

- (1) The zinc coating weight in coating weight test of pipe (antimony chloride method) shall be not less than 600g/m<sup>2</sup> in the average value found per lot [refer to 8.1 (5)] and not less than 550g/m<sup>2</sup> per pipe.
- (2) Pertaining to the number of immersions in the uniformity test, the end point shall not be reached even after 6 immersions (1) for the pipe and 5 immersions (2) for the socket.
  - (1) Shall be as specified in JIS H 8641.
  - (2) Shall be in accordance with JIS B 2301 or JIS B 2302.
- (3) The pipe shall endure not less than 100 minutes before the evolution of bubbles ceases in the alkali test.
- (4) The pipe of designation 50 A (2 B) and downward, when subjected to the bending test, shall be free from peelings or other abnormalities on the zinc coated surface in a bent portion.

### 4. Dimensions, Dimensional Tolerances and Mass

4.1 The dimensions, dimensional tolerances and mass of the pipe prior to zinc coating shall be as shown in Table 2(Standard).

4.2 The length of the pipe shall, as a rule, be 5500mm.

Table 2. Dimensions, Dimensional Tolerances and Mass

Designation of pipes		Outside diameter	Tolerances on outside diameter		Thickness	Tolerances on thickness	Unit mass without socket
A	B	mm	mm		mm		kg/m
6	1/8	10.5	【0.5mm		2.0	+ not specified -12.5%	0.419
8	1/4	13.8	【0.5mm		2.35		0.664
10	3/8	17.3	【0.5mm		2.35		0.866
15	1/2	21.7	【0.5mm		2.65		1.25
20	3/4	27.2	【0.5mm		3.65		1.60
25	1	34.0	【0.5mm		3.25		2.45
32	1 1/4	42.7	【0.5mm		3.25		3.16
40	1 1/2	48.6	【0.5mm		3.25		3.63
50	2	60.5	【0.5mm	【1%	3.65		5.12
65	2 1/2	76.3	【0.7mm	【1%	3.65		6.34
80	3	89.1	【0.8mm	【1%	4.05		8.49
90	3 1/2	101.6	【0.8mm	【1%	4.05		9.74
100	4	114.3	【0.8mm	【1%	4.5		12.2
125	5	139.8	【0.8mm	【1%	4.85		16.1
150	6	165.2	【0.8mm	【1%	4.85		19.2
175	7	190.7	【0.9mm	【1%	5.3		24.2
200	8	216.3	【1.0mm	【1%	5.85		30.4
225	9	241.8	【1.2mm	【1%	6.2		36.0
250	10	267.4	【1.3mm	【1%	6.40		41.2
300	12	318.5	【1.5mm	【1%	7.00		53.8
350	14	355.6		【1%	7.60		65.2

400	16	406.4		【1%	7.9		77.6
450	18	457.2		【1%	7.9		87.5
500	20	508.0		【1%	7.9		97.4
550	22	558.8		【1%	7.9		107
600	24	609.6		【1%	7.9		117

## 5. Appearance

- (1) The pipe shall be straight for practical purposes and its both ends shall be at right angles to the axis of the pipe.
- (2) The galvanized surface shall be free from defects injurious to use.

## 6. Manufacture Method

6.1 The pipe shall be of the black pipe with plane end specified in JIS G 3452 and shall be given hot dipped zinc coating in accordance with JIS H 9124 prior to threading and tapping.

6.2 The hot-dip galvanizing process shall be as follows:

- (1) Zinc to be used for galvanizing shall be the distilled zinc ingot Class 1 of JIS H 2107 or zinc ingots at least equal in quality.
- (2) The pipes and sockets shall be, prior to threading and tapping, cleared perfectly of rust, scales and adherents on the inside and outside surfaces by alkali-water-rinse and pickling. The residue of acid still adhering shall be removed by water-rinsing, and then the pipes and sockets shall be flux-treated and dried.
- (3) The pipes and sockets having undergone the treatments of (2) shall be dipped in zinc bath heated at a proper temperature and zinc-coated on both inside and outside surfaces.

6.3 The pipe shall be given the tapered (3) of JIS B 0203 on each end and have one socket specified in JIS B 2301 or JIS B 2302 screwed into its one end. To the other end with no socket screwed in a thread guard ring shall be fixed. However, this part of the pipe with small aperture may be protected by other suitable means.

Note (3) The inspection of the tapered thread shall be as specified in JIS B 0253.

## 7. Tests

7.1 As the zinc coating test, the pipe shall be subjected to a coating weight test (antimony chloride method), a uniformity test and an alkali test, and the socket shall be subjected to a uniformity test.

7.2 The zinc coating test method shall be as specified in JIS H 0401.

7.3 Bending Test

7.3.1 The bending test shall be carried out on the pipes of the designation 50 A (2 B) and downward.

### 7.3.2 Test Piece

The test piece shall be prepared by cutting a suitable length from the pipe end.

### 7.3.3 Test Method

The test piece shall be bent 90° (for about 10 seconds) at room temperature around a cylinder 8 x D(D: Outside diameter of pipe) in.

## 8. Inspections

### 8.1 Inspections

- (1) General matters of the inspection shall be as specified in JIS G 0303.
- (2) The test results of the zinc coating characteristic, dimensions and appearance shall conform to the requirements of 3., 4. and 5.
- (3) The inspections of appearance shall be carried out on each the pipe by the naked eye and hand feel.
- (4) The inspection of the pipe length shall be carried out by the use of a steel tape measure.
- (5) The method of sampling the test specimens for and the number of the test pieces for the coating weight test, uniformity test alkali test and bending test for the pipe shall be as follows. Take one test specimen from each lot of 250 pipes or its fraction of the same dimension, and from each end of the specimen take one test piece each for the coating weight test, uniformity test and alkali test and from one end of the specimen take one test piece for the bending test.
- (6) The method of sampling test sockets for the infirmity test and the number of test pieces shall be as follows.  
Take one test specimen from each lot of 500 sockets or its fraction of the same dimension and allow it to serve as a test piece.

### 8.2 Retest

In case part of test results for 7. fails to conform to the requirements and those for the other test items are acceptable, a retest may be carried out by arbitrarily sampling twice the specified number of new test specimens from the same original lot and by taking from them the test pieces specified for each of the unsuccessful items. In test when all the test pieces are successful, the lot shall be accepted.

## 9. Marking

Each pipe having passed the inspection shall be indelibly marked with the following items:

- (1) The mark meaning water
- (2) Symbol of class
- (3) Designation of pipe
- (4) Length
- (5) Manufacturer's name or its abbreviation