



**Republic of the Philippines**  
***Metropolitan Cebu Water District***  
Cor. Magallanes and Lapu-lapu Sts., Cebu City

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(Revisions of \_\_\_\_:\_\_\_\_)

**MCWD TECHNICAL STANDARDS AND  
SPECIFICATIONS FOR  
G.I. FITTINGS, Ø15mm THROUGH Ø200mm  
FOR WATER SUPPLY**

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**MCWD QUALITY MANAGEMENT SYSTEM  
TECHNICAL STANDARDS COMMITTEE**

## MCWD TECHNICAL STANDARDS AND SPECIFICATIONS FOR GI FITTINGS, Ø15mm THROUGH Ø200mm FOR WATER SUPPLY

### A. GENERAL

This standard specifies requirements for the heavy gauge, black and galvanized (hot-dipped zinc-coated) iron fittings with sizes ranging from Ø15mm through Ø200mm for ordinary use in water service and supply lines.

G.I. fittings under this standard shall conform to the requirements of PNS 26 (Philippine National Standard for Steel-Black and Hot-dipped Zinc-Coated Longitudinally Welded Steel Pipes), latest edition.

### B. MATERIALS

The fittings shall be made from low carbon steel strips conforming to the requirements of PNS 33, latest edition. The fittings shall be made by the electric resistance welding or furnace-butt-welding process.

For the threaded fitting, both ends shall be provided with taper threads, and a socket shall be screwed into one of the threaded end. Both the fitting and socket shall be galvanized before threading. It shall be coated with zinc both inside and outside by the hot-dip process in accordance with ASTM A-120.

### C. FITTING REQUIREMENTS

- 1. Workmanship.** The fitting shall be straight and both ends of the fitting shall be at right angle to the axis of the fitting. The inside and outside surfaces of the fitting shall be free from grooves, cracks, pinholes and other defects.
- 2. Zinc Coating.** The fitting shall be zinc coated (galvanized) in a hot-dipped process in accordance with ASTM A120. The mass of zinc coating shall not be less than 550 g/m<sup>2</sup> of the total coated surface, as determined by the average results of the two specimens taken for test and not less than 490 g/m<sup>2</sup> for either of the specimens.

4. **Threads.** The fitting shall be threaded in accordance with Table 2. Each length of threaded fitting shall be provided with one coupling of which thread shall be in accordance with Table 2.

**Table 3.** Thread requirements on fitting and coupling

PIPE		THREADS					COUPLING		
NPS Designator	Outside Diameter, mm	Number of Threads per 25.4 mm	End of Pipe to Hand Tight Plane, mm	Effective Length, mm	Total Length, mm	Pitch Dia. at Hand Tight Plane, mm	Outside Diameter, mm	Length, mm	Hand Tight Stand-off (No. of Threads)
			L1	L2	L4	E1	W	N <sub>L</sub>	
15	21.3	14	8.1	13.6	19.9	19.8	27.0	39.7	5
20	26.7	14	8.6	13.9	20.2	25.1	33.4	41.3	5
25	33.4	11.5	10.2	17.3	25.0	31.5	40.0	50.8	5
32	42.2	11.5	10.7	18.0	25.6	40.2	48.3	52.4	5
40	48.3	11.5	10.7	18.4	26.0	46.3	55.9	52.4	5.5
50	60.3	11.5	11.1	19.2	26.9	58.3	69.9	54.0	5.5
65	73.0	8	17.3	28.9	39.9	70.2	82.6	79.4	5.5
80	88.9	8	19.5	30.5	41.5	86.1	101.6	82.6	5.5
100	114.3	8	21.4	33.0	44.0	111.4	127.0	88.9	5
125	141.3	8	23.8	35.7	46.7	138.4	159.9	95.3	5
150	168.3	8	24.3	38.4	49.4	165.3	187.7	101.6	6
200	219.1	8	27.0	43.5	54.5	215.9	244.5	133.4	2
250	273.0	8	30.7	48.9	59.9	269.8	298.5	146.1	2
300	323.8	8	34.5	54.0	65.0	320.5	355.6	155.6	2

  

**DIMENSION OF HAND TIGHT ASSEMBLY FOR USED WITH TABLE**

5. **Hydraulic.** All fittings shall withstand to the hydraulic pressure required in Table 3. prior to zinc coating. The Hydraulic test shall be carried out using a hydrostatic tester with the standard values to be used as criteria for this test specified in Table 3.

**Table 3.** Hydraulic Pressure Requirement

Nominal Fitting Size (mm)	Hydraulic Test Pressure	
	MPa	Meter Water Column (M.W.C.)
15 - 25	4.90	(500)
32 - 80	6.86	(700)
100 - 300	8.30	(850)

**D. SAMPLING AND TESTING**

Sampling and testing of the GI Fittings manufactured/purchased under this Standard shall be in accordance with the requirements and procedure prescribed in PNS 26 and this Standard.

## **E. MARKINGS**

Each fitting shall be properly marked by rolling, stamping or stenciling to contain the following information:

- a. Name or material of the product
- b. Nominal pipe size, mm
- c. Schedule number and/or Nominal pressure, Mpa
- d. Manufacturer's name and/or its recognized trademark and production record code.

## **F. PRODUCT WARRANTY**

The manufacturer/dealer shall guarantee the purchaser that the G.I. fittings furnished are new and of current manufacture, free from defects in materials, design, and workmanship, and shall work best within a minimum period of one (1) year starting from the date of acceptance of the products by the purchaser. During the warranty period, if the fittings furnished are found to be defective due to materials, design, and workmanship under normal condition, operation and use, the manufacturer/dealer at his own option shall either replace or repair the defective product/s to its original condition. A Certificate of Warranty is required to this effect

## **G. AFFIDAVIT OF COMPLIANCE**

The manufacturer shall furnish the purchaser with an affidavit stating that the fittings furnished conform to all applicable requirements of this standard and the purchaser's specifications, and that all test specified herein have been performed and all test requirements have been met.

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