

The American Society for Testing and Materials is an international standards organization that develops and publishes voluntary consensus technical standards for a wide range of materials, products, systems, and services.

ASTM F2437 Compressible washer type direct tension indicators (DTIs) in diameters 1/4 to 2-1/2 inches
 ASTM F2437 covers the requirements for compressible washer type direct tension indicators in diameters ranging from 1/4" to 2-1/2" inclusive. These washers are capable of indicating a specified bolt tension in cap screws, bolts, anchors, and studs. They are available in two styles, and two grades within each style.

F2437 Types and Recommended Fasteners

Style/Grade	Cap Screw, Bolt, Anchor, or Stud	Hex or Heavy Hex Nut	Flat Washer
Style 2, Grade 55	F1554 G55 or A307	A194-2H/A563 Gr.A/C/DH	F436
Style 2, Grade 105	A193 B7 or F1554G105	A194-2H / A563 DH	F436
Style 1, Grade 5	A449/A354 Gr.BC or SAE J429 Gr.5	A563 Gr. B/C/D/DH or SAE J995 Gr.5	F436
Style 1, Grade 8	A354 BD or SAE J429 Gr.8	A563 Gr.D/DH or SAE J995 Gr.8	F436

F2437 Acceptable Compression Load Range

Diameter	Mean Compression Load Range (lbs)			
	Grade 5	Grade 8	Grade 55	Grade 105
½	9,700 – 10,700	13,700 – 15,340	4,450 – 4,900	8,500 – 9,400
5/8	15,550 – 17,200	21,850 – 24,200	7,050 – 7,800	13,500 – 15,000
¾	22,600 – 25,000	31,900 – 35,300	10,500 – 11,600	20,000 – 22,150
7/8	30,850 – 34,100	43,550 – 48,100	14,500 – 16,000	27,650 – 30,550
1	40,200 – 44,400	56,700 – 62,700	19,000 – 21,000	36,250 – 40,100
1-1/8	40,250 –44,450	73,150 – 80,900	23.950 – 26,450	47,300 – 52,300
1-1/4	51,100 – 56,450	91,750 – 101,450	30,400 – 33,600	59,850 – 66,150
1-3/8	61,150 – 67,600	112,450 – 124,250	38,550 – 42,600	73,800 – 81,600
1-1/2	74,350 – 82,150	135,150 – 149,400	44,050 – 48,700	89,300 – 98,700
1-3/4	74,450 – 82,300	177,850 – 196,500	59,550 – 65,850	124,600 – 137,750
2	98,000 – 108,300	236,850 – 261,750	78,650 – 86,950	165,800 – 183,300
2-1/4	127,400 – 140,800	277,900 – 307,100	102,050 – 112,750	212,900 – 235,350
2-1/2	156,750 – 173,250	379,600 – 419,600	125,400 – 138,600	240,550 – 265,850

The user is not obliged to install fasteners and DTIs to these tensions, and is free to specify installation to lower tension values. When so specified the DTI supplier shall provide a load-gap curve to enable the user to select the appropriate gap criteria for the intended target tension for the application.

F2437 Chemical Requirements, Heat Analysis

Element	Heat Analysis, All Types and Grades
Carbon	0.30 – 0.55%
Manganese	0.50 – 0.90%
Phosphorus	0.040% max

Element**Heat Analysis, All Types and Grades**

Sulfur	0.045% max
Silicon	0.15 – 0.35%



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