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ASTM F436 Hardened steel washers.

STM F436 covers the chemical and mechanical requirements for hardened washers in diameters ranging from 1/4" to 4" inclusive. These heat treated washers are for general purpose and structural use and are suitable for use with A325 and A490 structural bolts. Additionally, they are used with bolts per A449, A354, A193, A320, F1554 and whenever specified.

F436 Types

Type 1	Carbon Steel
Type 3	Weathering Steel

F436 Styles

<u>CIRCULAR</u>	Round SAE pattern	Sizes 1/4" through 4"
Beveled	Beveled Slope 2 in 12 or 9.5 degrees for use with American standard beams	Sizes 1/2" through 1-1/2"
Clipped	Circular or Beveled	Sizes 1/2" through 1-1/2" beveled, 1/4" through 4" circular
Beveled F436 washers are normally not available above 1". Clipped bevel washers are only usually available as specials.		

F436 Mechanical Properties

Plain Finish	Hot Dip Galvanized
Rockwell Hardness 38 to 45 HRC	Rockwell Hardness 26 to 45 HRC

F436 Chemical Requirements

Element	Type 1	Type 3
Phosphorous, max	0.040%	0.040%
Sulfur, max	0.050%	0.050%
Silicon	—	0.15 – 0.35%
Chromium	—	0.45 – 0.65%
Nickel	—	0.25 – 0.45%
Copper	—	0.25 – 0.45%

Weathering steel washer may also be made from any of the steels listed in Table 2 of [A325](#).