Standard Specification for

Stainless Clad Deformed and Plain Round Steel Bars for Concrete Reinforcement

AASHTO Designation: M 329M/M 329-11 (2019)[1]
Technical Subcommittee: 4f, Metals
Release: Group 2 (June)

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1. SCOPE

1.1. This specification covers the stainless steel-clad concrete reinforcement bars in cut lengths or coils, deformed and plain round. The standard sizes and dimensions of deformed bars and their number designations shall be those listed in Table 1 [Table 2].

Note 1—For coils of deformed bars, the capacity of industrial equipment limits the maximum bar size that can be straightened.

1.2. Bars are of three minimum yield levels: namely, 300 MPa [40,000 psi], 420 MPa [60,000 psi], and 520 MPa [75,000 psi], designated as Grade 300 [40], Grade 420 [60], and Grade 520 [75], respectively.

1.3. Hot-rolled plain rounds, in sizes up to and including 50.8 mm [2 in.] in diameter in coils or cut lengths, when specified for dowels, spirals, and structural ties or supports, shall be furnished under this specification in Grade 300 [40], Grade 420 [60], and Grade 520 [75] (Note 2).

For ductility properties (elongation and bending), test provisions of the nearest nominal diameter deformed bar size shall apply. Those requirements providing for deformations and marking shall not be applicable.

Note 2—The weight for plain rounds smaller than 9.5 mm [$^{3}/_{8}$ in.] in diameter shall be computed on the basis of the size in ASTM A510/A510M.

1.4. Welding of the material in this specification should not be attempted since no experience has been demonstrated regarding weldability of this product. Mechanical coupling should be specified for bars requiring continuous longitudinal connection. Mechanical couplings must conform to ASTM A276, UNS S31803.

1.5. This specification is applicable for orders in either SI units (M 329M) or in inch-pound units (M 329). SI units and inch-pound units are not necessarily equivalent. Inch-pound units are shown in brackets in the text for clarity, but they are the applicable values when the material is ordered to M 329.

Table 1—Deformed Bar Designation Numbers, Nominal Masses, Nominal Dimensions, and Deformation Requirements, SI Units

		Nominal Dimensions[a]			Deformation Requirements, mm		
Bar Designation No.[b]	Nominal Mass, kg/m	Diameter, mm	Cross-Sectional Area, mm^2	Perimeter, mm	Maximum Average Spacing	Minimum Average Height	Maximum Gap (Chord of 12.5% of Nominal Perimeter)
10	0.560	9.5	71	29.9	6.7	0.38	3.6
13	0.994	12.7	129	39.9	8.9	0.51	4.9
16	1.552	15.9	199	49.9	11.1	0.71	6.1
19	2.235	19.1	284	59.8	13.3	0.97	7.3
22	3.042	22.2	387	69.8	15.5	1.12	8.5
25	3.973	25.4	510	79.8	17.8	1.27	9.7
29	5.060	28.7	645	90.0	20.1	1.42	10.9
32	6.404	32.3	819	101.3	22.6	1.63	12.4
36	7.907	35.8	1006	112.5	25.1	1.80	13.7
43	11.38	43.0	1452	135.1	30.1	2.16	16.5
57	20.24	57.3	2581	180.1	40.1	2.59	21.9

[a] The nominal dimensions of a deformed bar are equivalent to those of a plain round bar having the same mass per meter as the deformed bar.

[b] Bar designation numbers approximate the number of millimeters of the nominal diameter of the bar.

Table 2—Deformed Bar Designation Numbers, Nominal Weights, Nominal Dimensions, and Deformation Requirements, U.S. Customary Units

		Nominal Dimensions[a]			Deformation Requirements, in.		
Bar Designation No.[b]	Nominal Weight, lb/ft	Diameter, in.	Cross-Sectional Area, $in.^2$	Perimeter, in.	Maximum Average Spacing	Minimum Average Height	Maximum Gap (Chord of 12.5% of Nominal Perimeter)
3	0.376	0.375	0.11	1.178	0.262	0.015	0.143
4	0.668	0.500	0.20	1.571	0.350	0.020	0.191
5	1.043	0.625	0.31	1.963	0.437	0.028	0.239
6	1.502	0.750	0.44	2.356	0.525	0.038	0.286
7	2.044	0.875	0.60	2.749	0.612	0.044	0.334
8	2.670	1.000	0.79	3.142	0.700	0.050	0.383
9	3.400	1.128	1.00	3.544	0.790	0.056	0.431
10	4.303	1.270	1.27	3.990	0.889	0.064	0.487
11	5.313	1.410	1.56	4.430	0.987	0.071	0.540
14	7.65	1.693	2.25	5.32	1.185	0.085	0.648
18	13.60	2.257	4.00	7.09	1.58	0.102	0.864

[a] The nominal dimensions of a deformed bar are equivalent to those of a plain round bar having the same weight per foot as the deformed bar.

[b] Bar designation numbers are based on the number of eighths of an inch included in the nominal diameter of the bars.

2. REFERENCED DOCUMENTS

2.1. *AASHTO Standards*:

- T 244, Mechanical Testing of Steel Products
- T 285, Bend Test for Bars for Concrete Reinforcement