AGMA Historic Accuracy Grades

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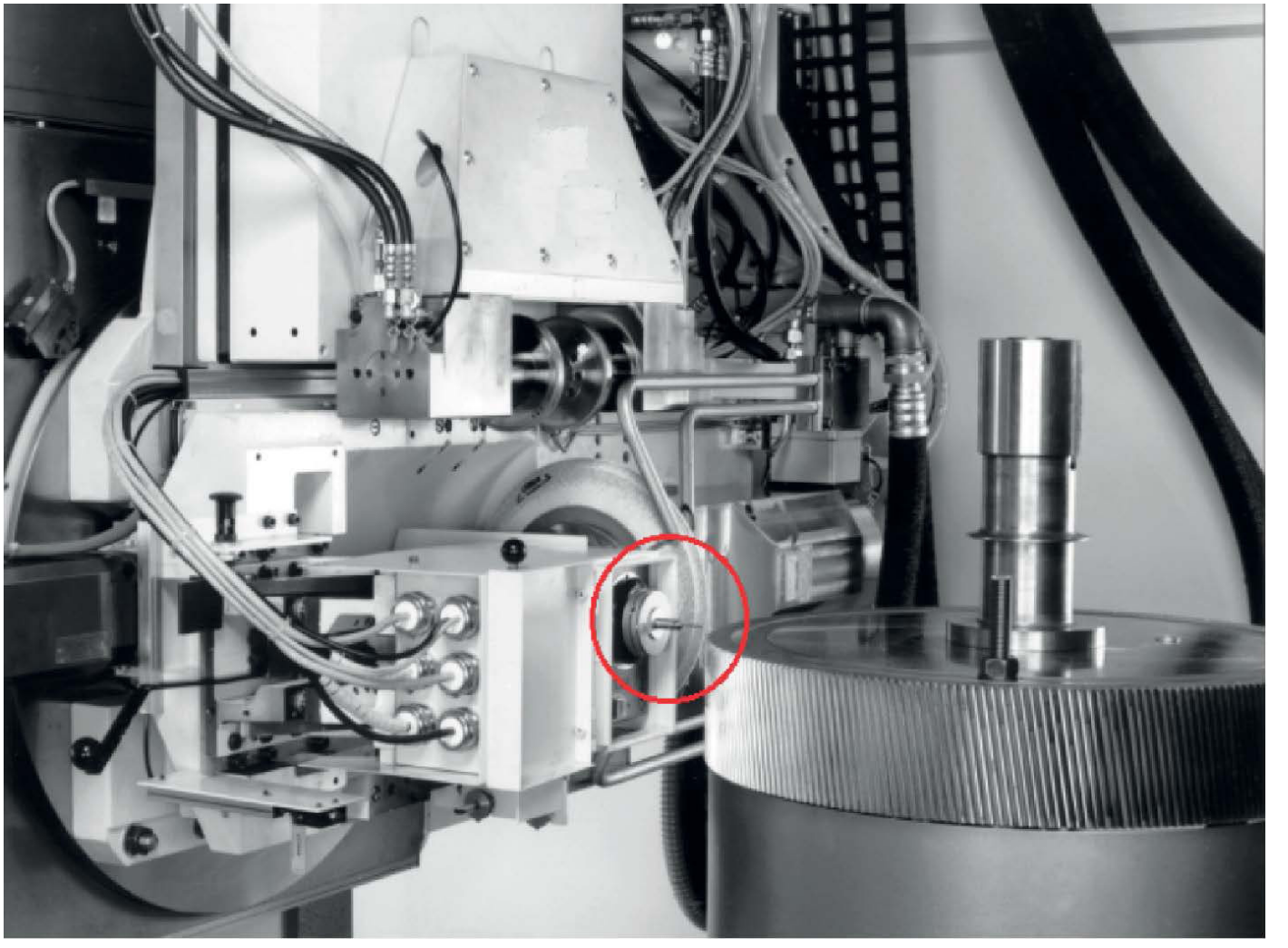
We get a lot of questions here at AGMA asking for help in decoding gear accuracy grades (also known as tolerance classes). If we're lucky the inspection standard is called out on the print, or the customer knows what standard they want the gears to be inspected, or they are ok to use the most current standard. If that's not the case it takes some detective work to determine the proper inspection standard.

I have a table I use as a first step (Page 31) to decode the different accuracy grade designation systems historically used by AGMA. The current designation systems used are highlighted in the table. Looking at letter designations, year published, or type of gear covered columns can help narrow down what standard the designer was thinking of, as long as it's to an AGMA standard. Tracking down international designations would be another level of complexity. If you need a historic standard to reference for old parts, AGMA maintains an archive of historic standards not on our document store, but available upon email request to *tech@agma.org*.



Accuracy Grade Designations	Standard	Year First Published by AGMA	Notes
V3 to V14	AGMA 943-A22	2022	As numbers increase precision decreases Covers rack flank tolerances
R31 to R50	AGMA 943-A22	2022	As numbers increase precision decreases Covers rack composite tolerances
R30 to R50	ANSI/AGMA ISO 1328-2-A21 (Identical to ISO 1328-2:2020)	2021	As numbers increase precision decreases Covers spur and helical composite tolerances
R20 to R30	ANSI/AGMA 2015-2-B15	2015	As numbers increase precision decreases Covers spur and helical composite tolerances
1 to 11	ANSI/AGMA ISO 1328-1-B14 (Identical to ISO 1328-1:2013)	2014	As numbers increase precision decreases Covers spur and helical flank tolerances
2 to 11	ANSI/AGMA ISO 17485-A08 (Identical to ISO 17485:2006)	2008	As numbers increase precision decreases Covers bevel gear tolerances
M1 or M2	ANSI/AGMA 2015-2-A06	2006	M1 is more precise than M2 Method suffix code “T” and/or “R” required Covers spur and helical master gear tolerances
C4 to C12	ANSI/AGMA 2015-2-A06	2006	As numbers increase precision decreases Covers spur and helical composite tolerances
A2 to A11	ANSI/AGMA 2015-1-A01	2001	As numbers increase precision decreases Covers spur and helical flank tolerances
4 to 12	ANSI/AGMA ISO 1328-2 (Identical to ISO 1328-2:1997)	1999	As numbers increase precision decreases Covers spur and helical composite tolerances
0 to 12	ANSI/AGMA ISO 1328-1 (Identical to ISO 1328-1:1995)	1999	As numbers increase precision decreases Covers spur and helical flank tolerances
B3 to B10	ANSI/AGMA 2009-B01, ANSI/AGMA 2009-A98, ANSI/AGMA 2009-B01	1998	As numbers increase precision decreases Covers bevel gear tolerances
3 to 12	ANSI/AGMA 2011-A98, ANSI/AGMA 2111-A98, ANSI/AGMA 2011-B14	1998	As numbers increase precision decreases Covers inch and metric wormgearing tolerances
5 to 1 (Coarse pitch) 4 to 1 (Fine pitch)	ANSI/AGMA 2000-A88	1988	As numbers increase precision increases Tooth thickness code, either “A” or “B” required Text “Master C” required before grade Covers spur and helical master gear tolerances
Q15 to Q3	ANSI/AGMA 2000-A88	1988	As numbers increase precision increases Optional “thickness”, “material”, and “treatment and hardness” designation codes (Example with optional codes “Q8A-HA14”) AGMA 390.03 covers spur, helical, bevel, hypoid, rack and wormgearing tolerances, AGMA 390.03a covers bevel, hypoid, rack and wormgearing tolerances, ANSI/AGMA 2000-A88 covers spur and helical gear tolerances
	AGMA 390.03a	1988	
	AGMA 390.03	1980	
16 to 5 (Fine pitch)	AGMA 237.01	1964	Accuracy specification coding per AGMA 390.02 with addition of an angular tolerance letter code (d to z) As letters approach z precision decreases (Example with angular tolerance code “8-H-14r”)
7 to 1 (Coarse pitch) 6 to 1 (Fine pitch)	AGMA 235.02, AGMA 390.3	1964	As numbers increase precision increases Tooth thickness code, either “A” or “B” required Covers spur and helical master gear tolerances
15 to 3 (Coarse pitch) 16 to 5 (Fine pitch)	AGMA 390.02	1964	As numbers increase precision increases Optional “backlash”, “material”, and “treatment and hardness” designation codes (Example with optional codes “10C-A-4”) AGMA 390.01 covers spur and helical gear tolerances, AGMA 390.02 covers spur, helical, bevel, hypoid, and rack tolerances
	AGMA 390.01	1961	
Classes 3 to 1	AGMA 234.01	1956	As numbers increase precision increases Covers wormgearing tolerances
Classes 3 to 1	AGMA 235.01	1947	As numbers increase precision increases Covers spur and helical master gear tolerances
Classes 3 to 1	AGMA 236.01A, AGMA 236.02, AGMA 236.03, ASA B6.11-1951, AGMA 236.04, ASA B6.11-1956	1946	As numbers increase precision increases Covers fine pitch spur, helical, bevel and worm master gear tolerances
Commercial Classes 4 to 1 Precision Classes 3 to 1	AGMA 236.01, AGMA 236.01A, AGMA 236.02, AGMA 236.03, ASA B6.11-1951, AGMA 236.04, ASA B6.11-1956	1945	As numbers increase precision increases Optional backlash designation code (A to D) Covers fine pitch spur, helical, bevel and wormgearing tolerances
Classes 4 to 1 (Spur & Helical) Classes 4 to 2 (Bevel)	ASA B6.6-1946, AGMA 231.01, AGMA 231.02, AGMA 232.01, AGMA 232.02	1943	As numbers increase precision increases Classes divided according to speed Covers coarse pitch spur, helical, and bevel gear tolerances