

COMPOSITE ERROR CHECK

5.00 PIC Gears are inspected on variable center distance equipment where they are meshed with a master gear under light checking pressure (tabulated below). As the gears rotate, center distance changes are greatly amplified and recorded on PIC "TRUE BLUE" Gear Tapes as shown in Figure 5.1

5.01 Refer to Gear Tolerance Tables 5.2 and 5.3 for detailed gear tolerances. Individual "True Blue" tapes are available with PIC spur and bevel gears for a nominal additional charge based on the quantity involved.

GEAR TESTING RADIUS

5.02 Gear Size is controlled by specifying a maximum and a minimum gear testing radius. The inspection trace must lie between these limits. The maximum limit for PIC stock gears is set at the theoretical pitch radius. The minimum limit is determined by the class of gear being cut.

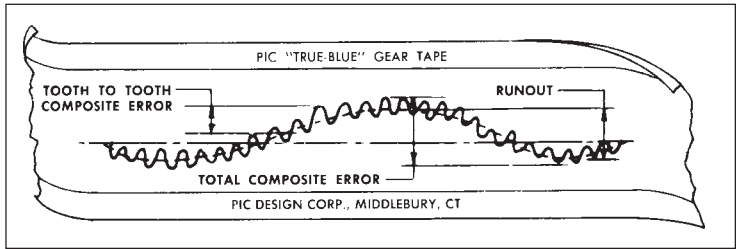


FIGURE 5.1 — "TRUE BLUE" GEAR TAPE

TABLE 5.1
AGMA 390.03 FINE-PITCH GEAR TOLERANCES TABLE

AGMA Quality No.	No. of Teeth and Pitch Diameter	Diametral Pitch Range	Tooth-to-Tooth Composite Tolerance	Total Composite Tolerance
10*	Up to 20 Teeth Incl.	20 to 200	.0007	.0010
	Over 20 Teeth Up to 1.999"	20 to 200	.0005	.0010
	Over 20 Teeth 2" to 3.999"	20 to 200	.0005	.0012
	Over 20 Teeth 4" and over	20 to 200	.0005	.0014
11	Up to 20 Teeth Incl.	20 to 200	.0005	.0007
	Over 20 Teeth Up to 1.999"	20 to 200	.0004	.0007
	Over 20 Teeth 2" to 3.999"	20 to 200	.0004	.0009
	Over 20 Teeth 4" and over	20 to 200	.0004	.0010
12**	Up to 20 Teeth Incl.	20 to 200	.0004	.0005
	Over 20 Teeth Up to 1.999"	20 to 200	.0003	.0005
	Over 20 Teeth 2" to 3.999"	20 to 200	.0003	.0006
	Over 20 Teeth 4" and over	20 to 200	.0003	.0007
13	Up to 20 Teeth Incl.	20 to 200	.0003	.0004
	Over 20 Teeth Up to 1.999"	20 to 200	.0002	.0004
	Over 20 Teeth 2" to 3.999"	20 to 200	.0002	.0004
	Over 20 Teeth 4" and over	20 to 200	.0002	.0005
14***	Up to 20 Teeth Incl.	20 to 200	.00019	.00027
	Over 20 Teeth Up to 1.999"	20 to 200	.00014	.00027
	Over 20 Teeth 2" to 3.999"	20 to 200	.00014	.00032
	Over 20 Teeth 4" and over	20 to 200	.00014	.00037
15	Up to 20 Teeth Incl.	20 to 200	.00014	.00019
	Over 20 Teeth Up to 1.999"	20 to 200	.00010	.00019
	Over 20 Teeth 2" to 3.999"	20 to 200	.00010	.00023
	Over 20 Teeth 4" and over	20 to 200	.00010	.00027

TABLE 5.2
GEAR TOLERANCES

AGMA Class Gear	P.D. Tol.	O.D. Tol.	Bore Tol.	C.D. Fixed Centers	C.D. Adjustable Centers
Q-10	-.001	-.002	+.0005	+.0005	+.002
Q-12	-.0007	-.0015	+.0003	+.0003	+.0015
Q-14	-.0005	-.001	+.0002	+.0002	+.0012

TABLE 5.3
AGMA 2015-2-A06 FINE-PITCH GEAR TOLERANCES TABLE

PIC Quality Number	DIN Δ Quality Number	Pitch Diameter	Metric Module Range	Tooth-to-Tooth Composite Tolerance μm	Total Composite Tolerance μm
T7	C7 / T7	Up to 12mm	Up to 0.6 Module	7	20
		Over 12 to 50mm		9	25
		Over 50 to 100mm		10	28
		Over 100mm		11	32
T6	C6 / T6	Up to 12mm	Up to 0.6 Module	8	22
		Over 12 to 50mm		10	28
		Over 50 to 100mm		11	32
		Over 100mm		12	36
T5	C5 / T5	Up to 12mm	Up to 0.6 Module	5	14
		Over 12 to 50mm		5.5	16
		Over 50 to 100mm		6	18
		Over 100mm		7	20
T5	C5 / T5	Up to 12mm	Up to 0.6 Module	5.5	16
		Over 12 to 50mm		6	18
		Over 50 to 100mm		7	20
		Over 100mm		8	22
T5	C5 / T5	Up to 12mm	Up to 0.6 Module	3.5	10
		Over 12 to 50mm		4	11
		Over 50 to 100mm		4.5	12
		Over 100mm		5	14
T5	C5 / T5	Up to 12mm	Up to 0.6 Module	3.5	11
		Over 12 to 50mm		4.5	12
		Over 50 to 100mm		5	14
		Over 100mm		5	16

Δ DIN, ISO, ANSI
All Dimensions in millimeters

Extracted from AGMA Gear Classification Manual for Spur, Helical and Herringbone Gears (AGMA 390.03), with the permission of the publisher, The American Gear Manufacturers Association, 1330 Massachusetts Avenue, N.W., Washington, D.C. 20005.

* AGMA 390.03/PIC Q10 = AGMA/ANSI 2015-2-A06 C7/ISO T7

** AGMA 390.03/PIC Q12 = AGMA/ANSI 2015-2-A06 C6/ISO T6

*** AGMA 390.03/PIC Q14 = AGMA/ANSI 2015-2-A06 C5/ISO T5