Altra Centrum Premier– 300 Spine

Arrow Consistency Test Report

Prepared by: PNL Testers
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1. Manufacturer and Arrow Information

The arrows evaluated in this report were ALTRA 246 CENTRUM PREMIER, 300-spine carbon arrows. The information below identifies the specific product tested and provides the basic manufacturer and sample information.

Manufacturer: ALTRA
Model: 246 CENTRUM PREMIER
Rated Spine: 300
Material: Carbon
Quantity Tested: 6 arrows
Purchase Price: $14.99 per arrow

Manufacturer Published Specifications

GPI: 9.7
Straightness Tolerance: ±.001
Weight Tolerance:± 1GR

Only specifications published by the manufacturer for this model are reported. No numerical manufacturer tolerance for radial spine variation was found.

Manufacturer Technology Claim: “NO SPINE Technology” — described by Altra as enhancing tunability and shot consistency.

Straightness tolerance is listed as a manufacturer-published specification only. Straightness was not independently tested as part of this evaluation.

2. Test Data and Results

Each arrow was measured for static spine at eight rotational positions, spaced at 45° intervals around the shaft. The measurements shown below represent the raw spine data collected for each of the 6 arrows tested.

The raw data was then used to calculate the average spine, minimum and maximum spine, radial spread, radial variation, and maximum deviation from the individual arrow average.

Raw Spine Measurements

Arrow	0°	45°	90°	135°	180°	225°	270°	315°
Arrow 1	0.286	0.281	0.281	0.284	0.284	0.282	0.280	0.284
Arrow 2	0.289	0.283	0.284	0.287	0.289	0.285	0.284	0.285
Arrow 3	0.285	0.283	0.282	0.283	0.284	0.284	0.283	0.284
Arrow 4	0.282	0.281	0.277	0.279	0.282	0.281	0.283	0.281
Arrow 5	0.289	0.284	0.284	0.285	0.286	0.285	0.284	0.289
Arrow 6	0.286	0.279	0.278	0.275	0.283	0.279	0.274	0.280

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Arrow	Average	Minimum	Maximum	Radial Spread	Radial Variation (%)	Maximum deviation from average
Arrow 1	0.283	0.280	0.286	0.0058	2.04%	0.0031
Arrow 2	0.286	0.283	0.289	0.0058	2.02%	0.0032
Arrow 3	0.284	0.282	0.285	0.0029	1.02%	0.0014
Arrow 4	0.281	0.277	0.283	0.0058	2.06%	0.0036
Arrow 5	0.286	0.284	0.289	0.0048	1.68%	0.0031
Arrow 6	0.279	0.274	0.286	0.0125	4.48%	0.0066

Group Spine Summary

Average Group	**0.283**	
Stiffest Arrow	**Arrow 6**	**0.279**
Weakest Arrow	**Arrow 5**	**0.286**
Group Spine Spread	**0.006**	
Group Spine Spread %	**2.25%**	
Difference from Factory Spine	**-0.017**	
Difference from Factory Spine (%)	**-5.64%**	

3. Radial Spine Consistency Results

The Altra Centrum Premier shafts tested were purchased for $14.99 per arrow and were therefore evaluated using the PNL Testers Standard radial consistency benchmark of 2.0% radial variation.

Of the 6 arrows tested, 2 met the applicable PNL radial consistency benchmark and 4 exceeded the 2.0% limit. Arrow 3 recorded a radial variation of 1.02%, and Arrow 5 recorded 1.68%.

4. Group Spine Consistency Results

Average Group Spine: 0.283
Manufacturer Nominal Spine: 0.300
Stiffest Arrow: Arrow 6 — 0.279
Weakest Arrow: Arrow 5 — 0.286
Group Spine Spread: 0.006 in.
Group Spine Spread (%): 2.25%
Difference from Factory Spine: −0.017 in.
Difference from Factory Spine (%): −5.64%

The average measured spine was **0.017 in. lower in deflection than the manufacturer's nominal 0.300 spine**, meaning the tested group averaged **5.64% stiffer than nominal**.

The stiffest arrow averaged **0.279**, while the weakest arrow averaged **0.286**, producing an arrow-to-arrow group spine spread of **0.006 in., or 2.25%**.

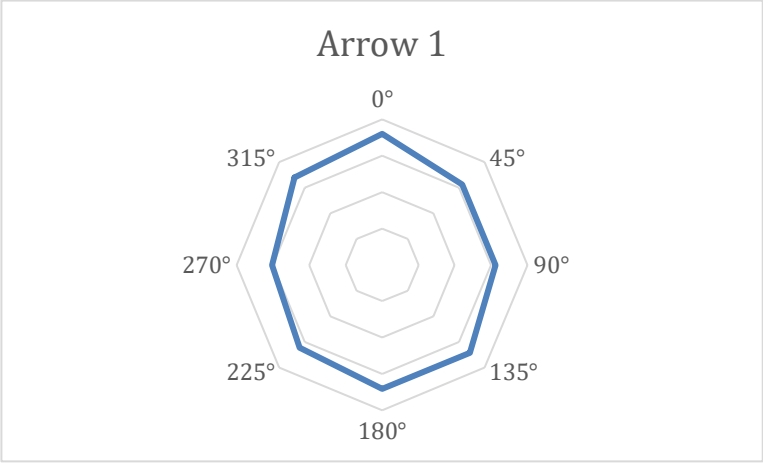
5. Arrow Weight Consistency Results

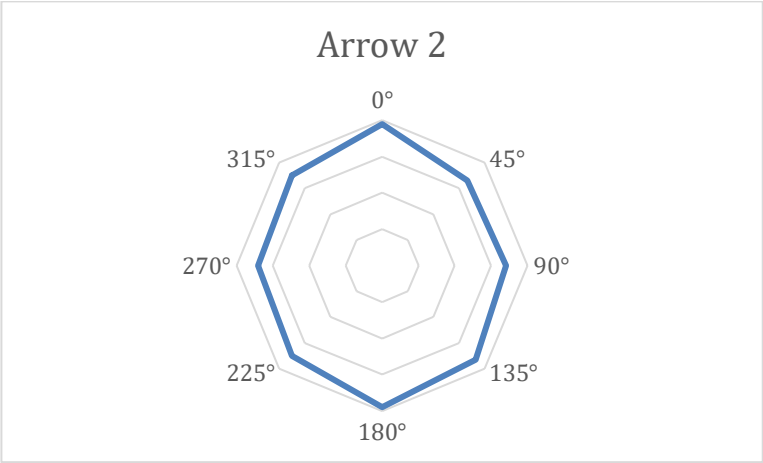
Each arrow was weighed in the **factory-supplied configuration**, consisting of the carbon shaft, factory-installed fletchings, and factory nock. **No insert was installed during weight measurement.**

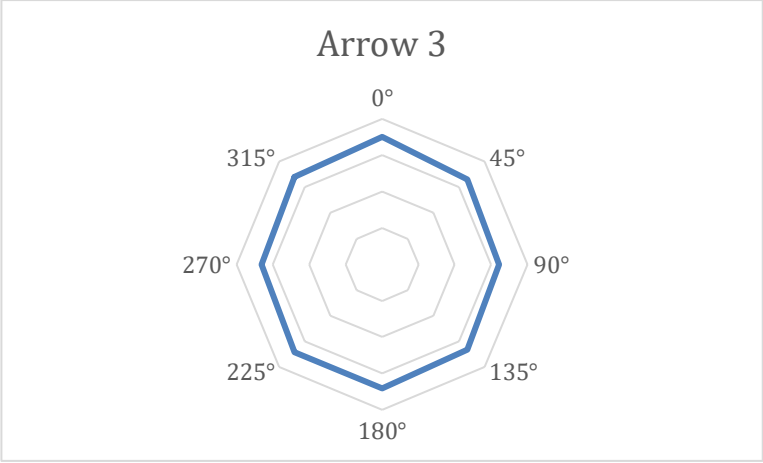
Arrow	Total Weight (gr)	Notes
Arrow 1	**340.1**	
Arrow 2	**339.9**	
Arrow 3	**339.8**	
Arrow 4	**340.2**	
Arrow 5	**339.8**	
Arrow 6	**340.1**	
Summary		**Weight (gr)**
Average		340.0
Minimum		339.8
Maximum		340.2
Total Weight Spread		0.4
Maximum Deviation from Average		0.2
Weight Spread Percentage		**0.12%**

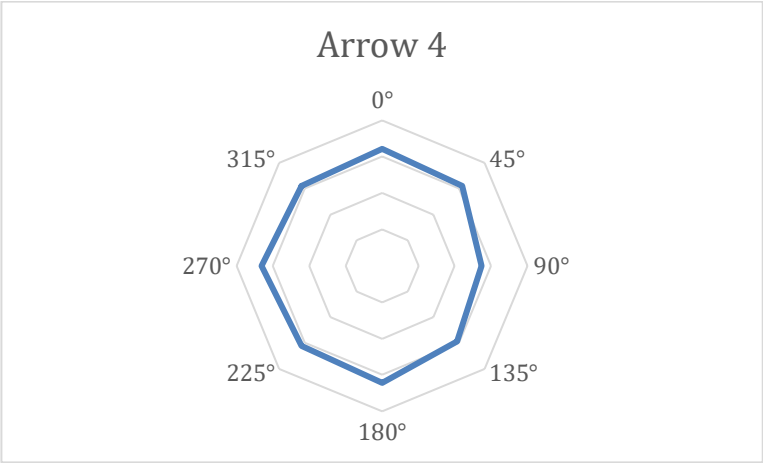
Across the 6 arrows tested, the total weight spread was **.4 grains**, representing a **0.12% difference** between the lightest and heaviest arrows.

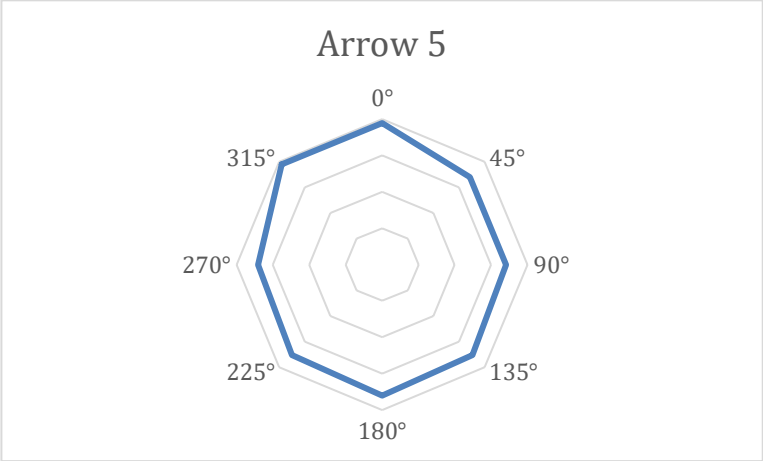
6. Individual Arrow Radial Spine Profiles

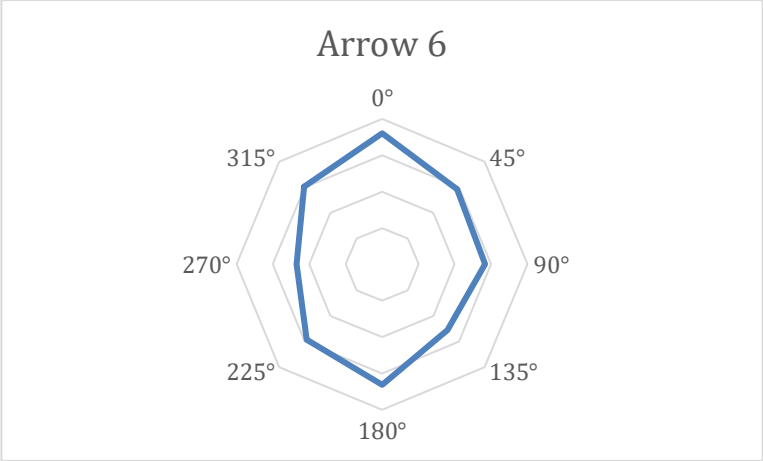







Arrow 4
0°
45°
90°
135°
180°
225°
270°
315°


Arrow 5
0°
45°
90°
135°
180°
225°
270°
315°


Arrow 6
0°
45°
90°
135°
180°
225°
270°
315°

Appendix A — PNL Testers Technical Reference Notes

Technical Reference Notes
PNL Testers Radial Consistency Benchmarks by Shaft Price
Budget — Under $7.99 per shaft: ≤ 3.0%
Standard — $8.00 to $14.99 per shaft: ≤ 2.0%
Premium — Over $15.00 per shaft: ≤ 1.0%
The applicable radial consistency limit is automatically selected based on the entered price per bare shaft.
MEETS: Radial variation is equal to or below the applicable limit for the shaft's price category.
EXCEEDS LIMIT: Radial variation is greater than the applicable limit for the shaft's price category.
Maximum Deviation from Average:
Shows the largest difference between any individual radial spine measurement and that arrow's average spine.
Radial Spread:
Shows the difference between the highest and lowest spine measurements recorded around the shaft.
Radial Variation (%):
Shows the radial spread as a percentage of that arrow's average spine. It measures how much the shaft's bending stiffness changes as the shaft is rotated through 360°. **Lower percentages indicate greater radial consistency. (Radial Variation (%) = Radial Spread ÷ Average Spine × 100)**
Group Spine Spread (%):
Shows the percentage difference between the stiffest and weakest average shaft spine within the tested group.