

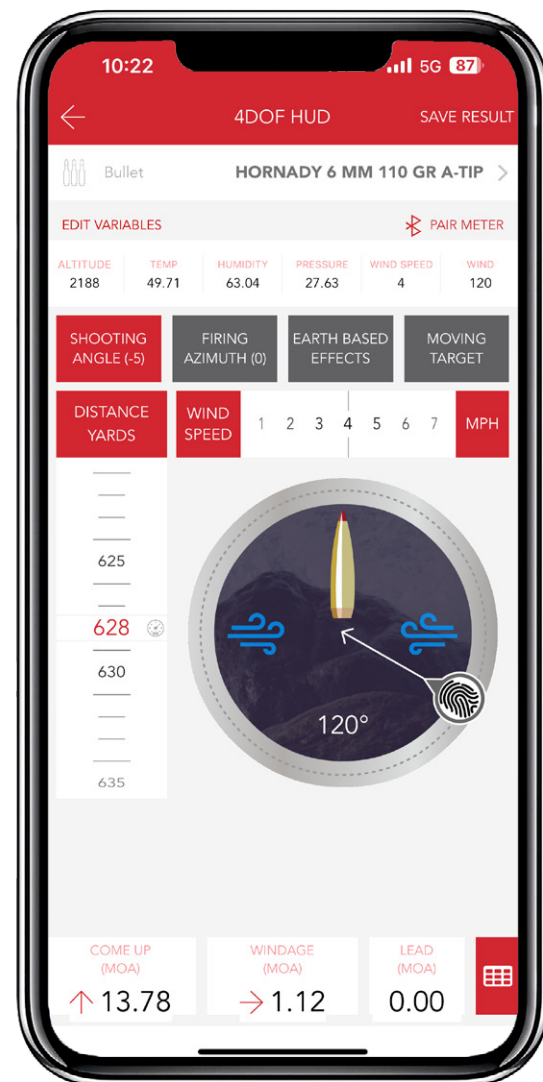


Hornady®

**LAW ENFORCEMENT
& MILITARY**

H4DOF

HORNADY BALLISTIC CALCULATOR

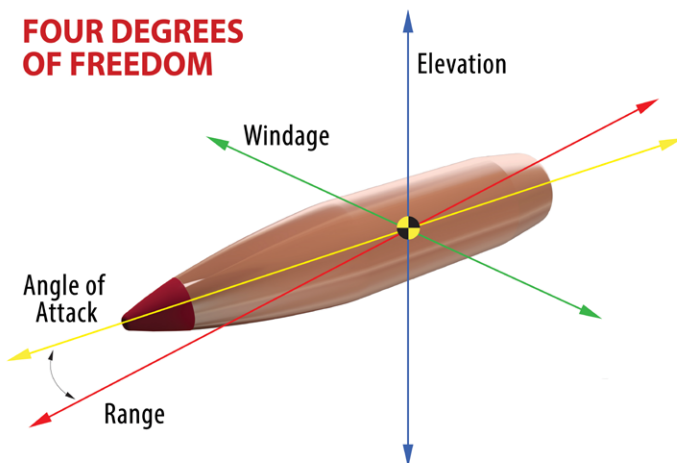


EXPLANATION

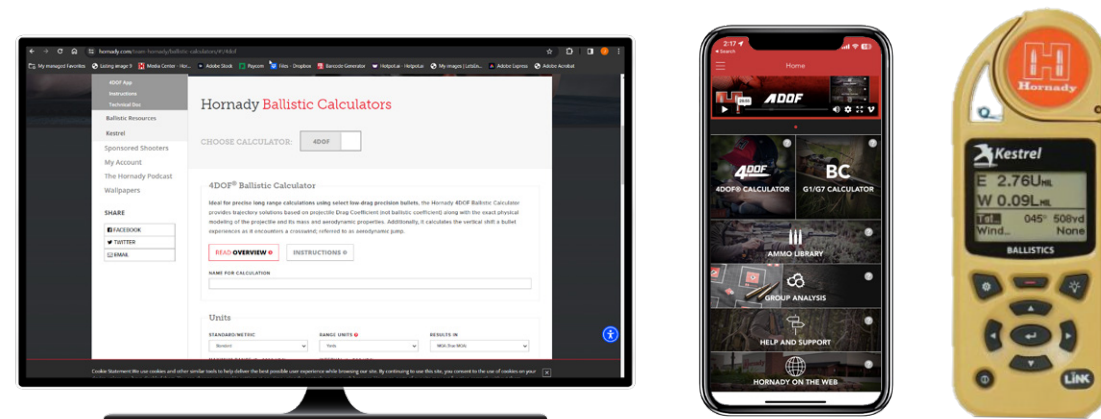
Modern sniping and long range shooting requirements have far exceeded the capability of Ballistic Coefficient (BC) based calculations. The adoption of custom drag modeling has greatly improved upon the legacy limitations of BC but still lacks the ability to model bullet dynamics in flight.

On it's way to a target, a bullet almost never travels with its nose perfectly aligned with the trajectory for the entire flight path. Instead the front of the bullet "wobbles" around the path it is traveling on (precession and nutation). The angular difference between the bullets orientation and the path it is traveling on is referred to as angle of attack. Any angle of attack results in multiple forces (in addition to the drag force) acting on the bullet and will influence the trajectory. To account for the additional forces acting on the bullet and what impact it will have on it's trajectory the bullet must be part of the model used to make trajectory predictions.

Within the 4DOF bullet library each bullet uses over 400 mass, inertial, Cd vs Mach, and aerodynamic properties unique to each bullet. This method far exceeds the simplicity of a single value being used to define a bullets flight characteristics (BC), or better drag modeling from a custom drag profile that leaves out the additional forces acting on a bullet in flight.



AVAILABILITY



BULLET LIBRARY

Select bullet from library and automatically load 400+ values unique to your bullet. (Bullets from a variety of manufacturers are loaded in the 4DOF bullet library)

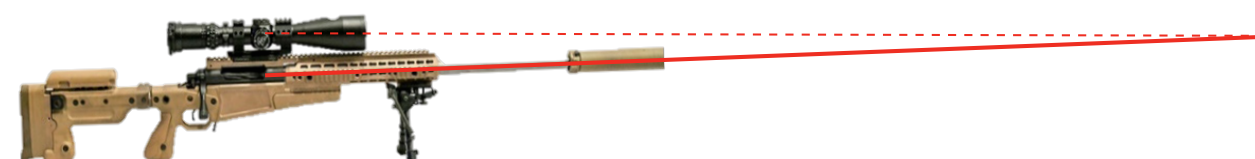
MUZZLE VELOCITY

No truing of muzzle velocity necessary, simply input the measured muzzle velocity. Account for temperature's influence on muzzle velocity using a temperature sensitivity coefficient (TSF) from testing or by selecting from a propellant library.



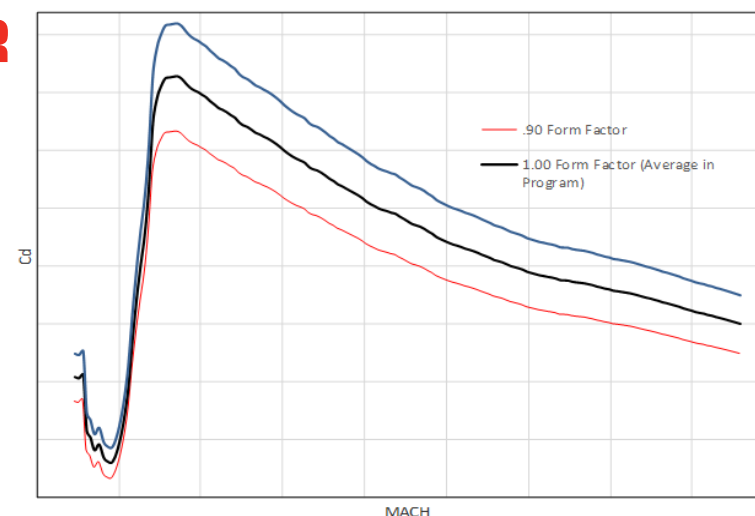
ZERO ANGLE

Alternative to zero range that calculates trajectory based on launch angle of the barrel. Zero Angle allows the user to establish their zero angle once and never have to re zero again regardless of environment or shot conditions.



AXIAL FORM FACTOR

Controlled adjustment of bullet drag to account for your unique barrel and muzzle device. Axial Form Factor adjustments can be made at any distance (recommended 400-800m). No transonic or subsonic requirements for adjustment.



Now you have accurate solutions regardless of environment or location, no re zeroing, no additional truing.

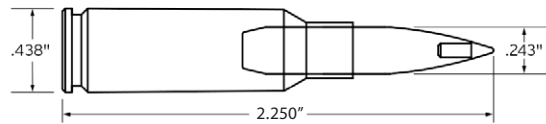
6mm ARC
106 gr A-TIP®



ITEM NO. 81606

Performance Characteristics:

- Match accuracy
- Efficient Design
- Minimal Positional Sensitivity
- Minimal deflection on glass
- MADE IN THE USA
- **Net Explosive Weight:** 0.0891 lbs./ 0.0404 kg. (approx. per box)



BULLET:



- **Ballistic Coefficient:** .580
- **Sectional Density:** .256
- **Bullet Length:** 1.310"
- **Recommended Rifling Twist Rate:** 1:7.5"
- **Characteristics:** Match Grade, Boattail, Aluminum Tip
- **Push/Pull:** 50/50 Minimum (lbs.)

LOT NUMBERS

- Lot numbers on each box and case carton

BALLISTIC DATA

	Muzzle	100 yds	200 yds	300 yds	400 yds	500 yds
Velocity (fps)	2625	2474	2328	2187	2051	1920
Energy (ft lbs)	1622	1440	1276	1126	990	867
Trajectory (in)	-1.5	0	-4.2	-14.8	-32.7	-58.9

PACKAGING



- **20 ct. Tray:** Item No. 5701



- **Box Weight:** 0.85 lbs.
- **Dimensions:** 2.50" x 2.65" x 5.25"
- 20 rounds per box with tray



- **Carton Weight:** 9.00 lbs.
- **Dimensions:** 5.90" x 6.50" x 8.25"
- 10 boxes/200 rounds per case carton

*Canned and crated options available.

CASE: 6mm ARC



- **Caliber designation:** 6mm ARC, imprinted on case head
- **Characteristics:** High Quality Brass Alloy

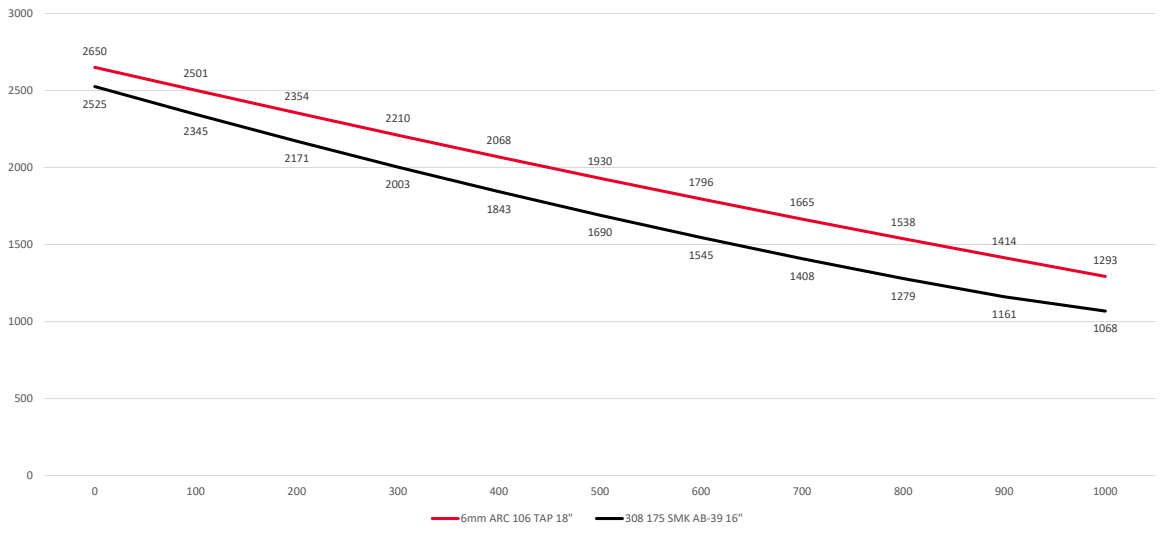
POWDER & PRIMER



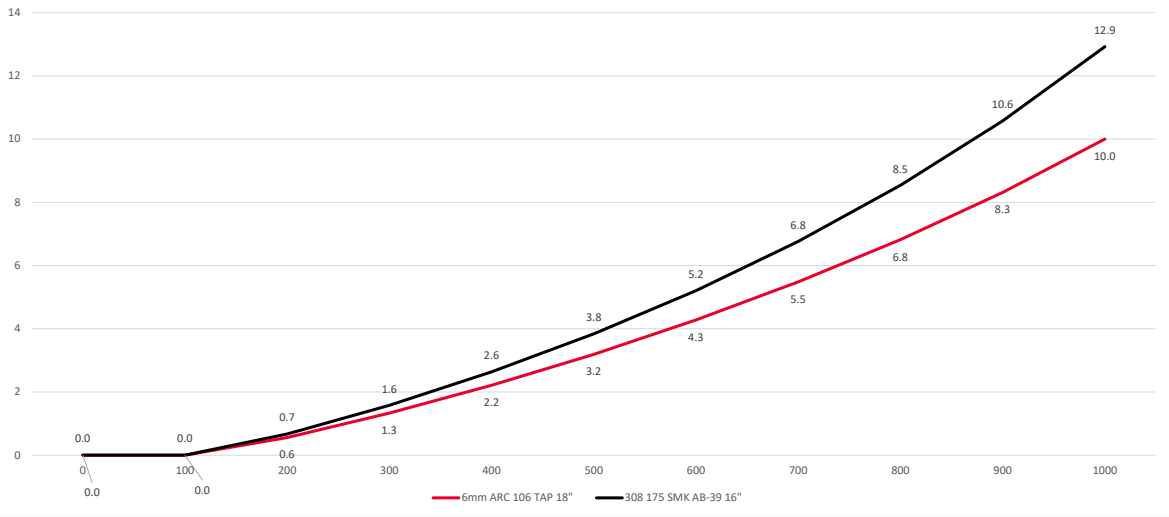
- **Powder:** Temperature stable with flash suppressant
- **Primer:** Small Rifle

6mm ARC
106 gr A-TIP®

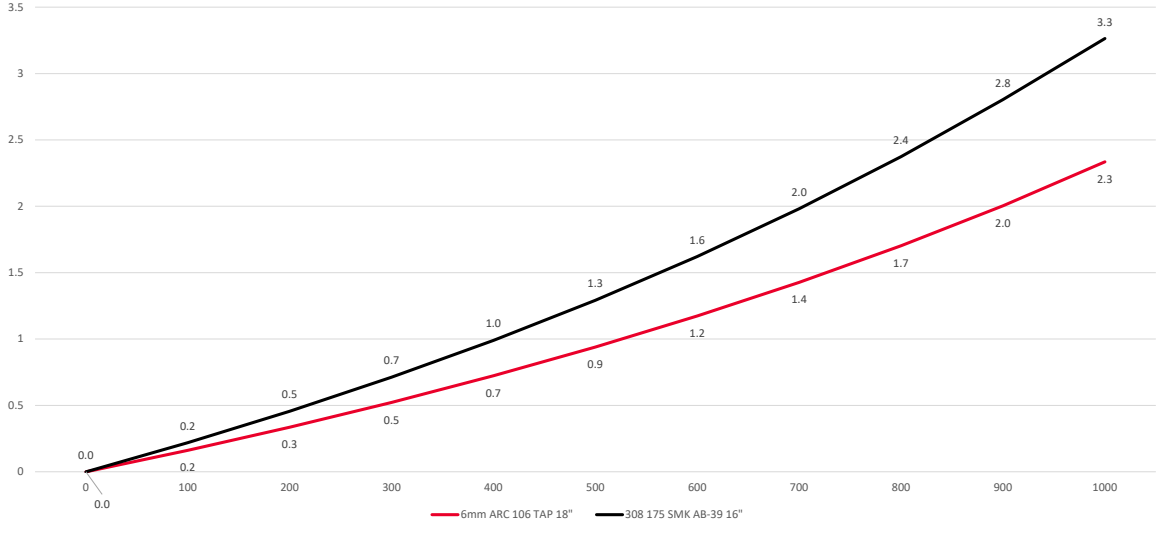
VELOCITY FPS



ELEVATION MRAD



WIND MRAD



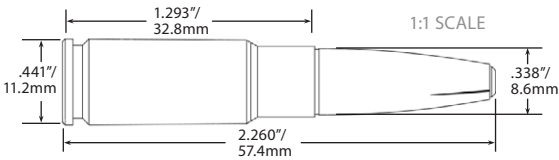
338 ARC
307 gr SUB-X®



ITEM NO. 82275

Performance Characteristics:

- Minimal deflection on glass
- High retained Weight
- MADE IN THE USA
- **Net Explosive Weight:** 0.0033 lbs./ 0.015 kg. (approx. per box)



CASE: 338 ARC



- **Caliber designation:** 338 ARC, imprinted on case head
- **Characteristics:** High Quality Brass Alloy

BULLET: SUB-X®



- **Ballistic Coefficient:** (G1) .375
- **Sectional Density:** .384
- **Bullet Length:** 1.290" / 32.8mm
- **Recommended Rifling Twist Rate:** 1:8"
- **Characteristics:** Flex Tip, Lead Core, Copper Jacket, Cannelured
- **Push/Pull:** 50/50 Minimum (lbs.)
222/222 Minimum (n)

LOT NUMBERS

- Lot numbers on each box and case carton

POWDER & PRIMER



- **Powder:** Temperature Stable with Flash Suppressant
- **Primer:** Small Rifle, Lead Free

BALLISTIC DATA - 16" Test Barrel

	Muzzle	100 yds	200 yds	300 yds	400 yds	500 yds
Velocity (fps)	1050	990	942	901	866	833
Energy (ft lbs)	752	668	605	554	511	473
Trajectory (in)	-1.5	0	-33.9	-107.1	-223	-385.6

	Muzzle	100 m	200 m	300 m	400 m	500 m
Velocity (mps)	320	302	287	275	264	254
Energy (j)	1020	906	820	751	693	641
Trajectory (cm)	-3.8	0	-86.1	-272	-566.4	-979.4

PACKAGING



- **20 ct. Tray:** Item No. 8407



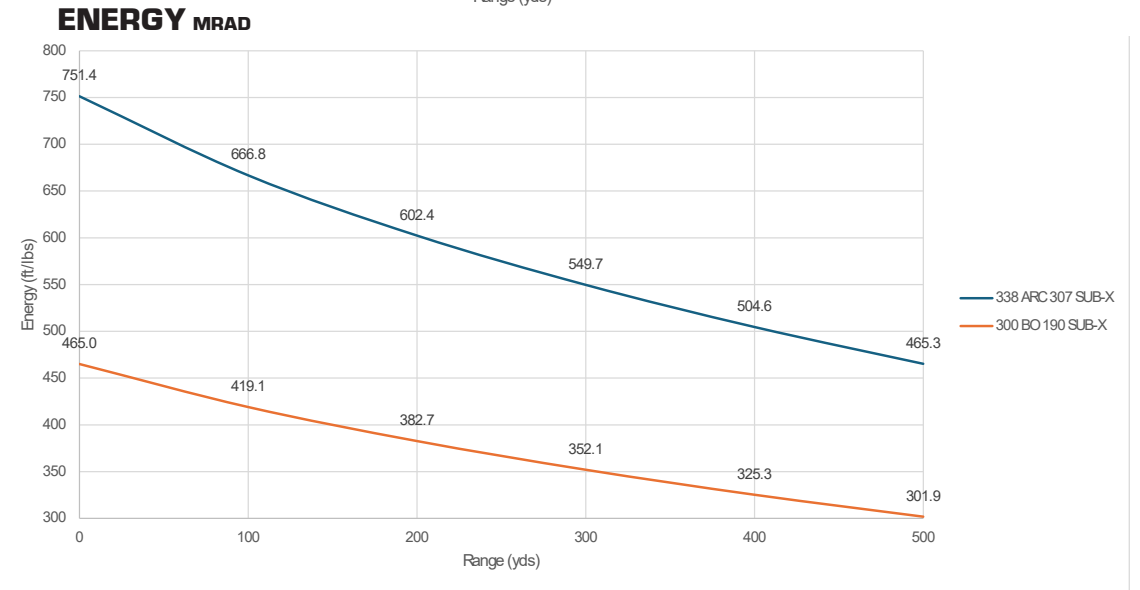
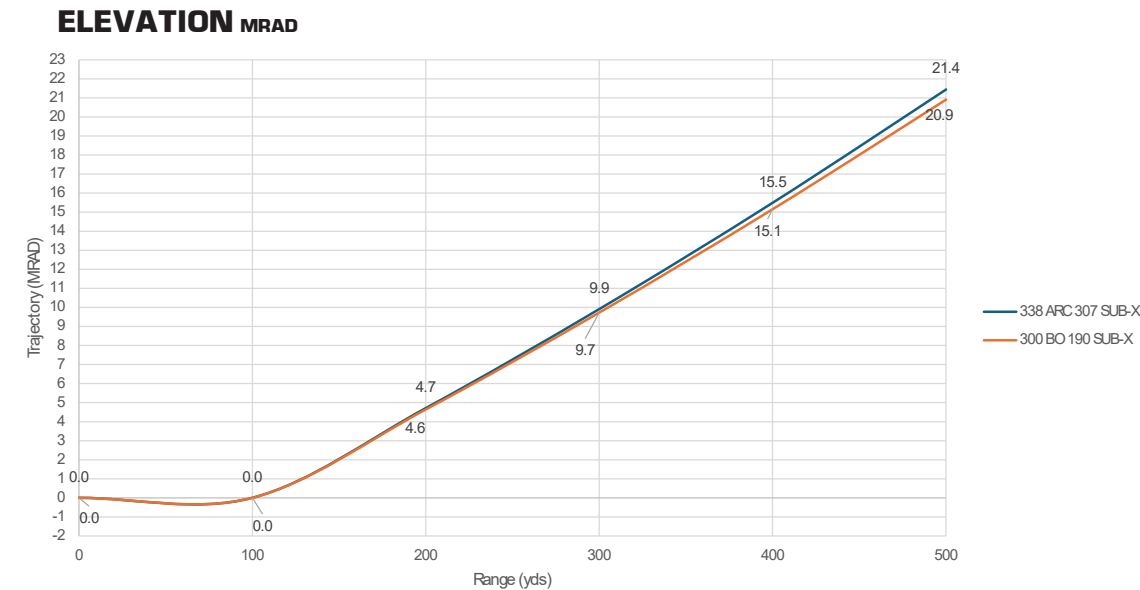
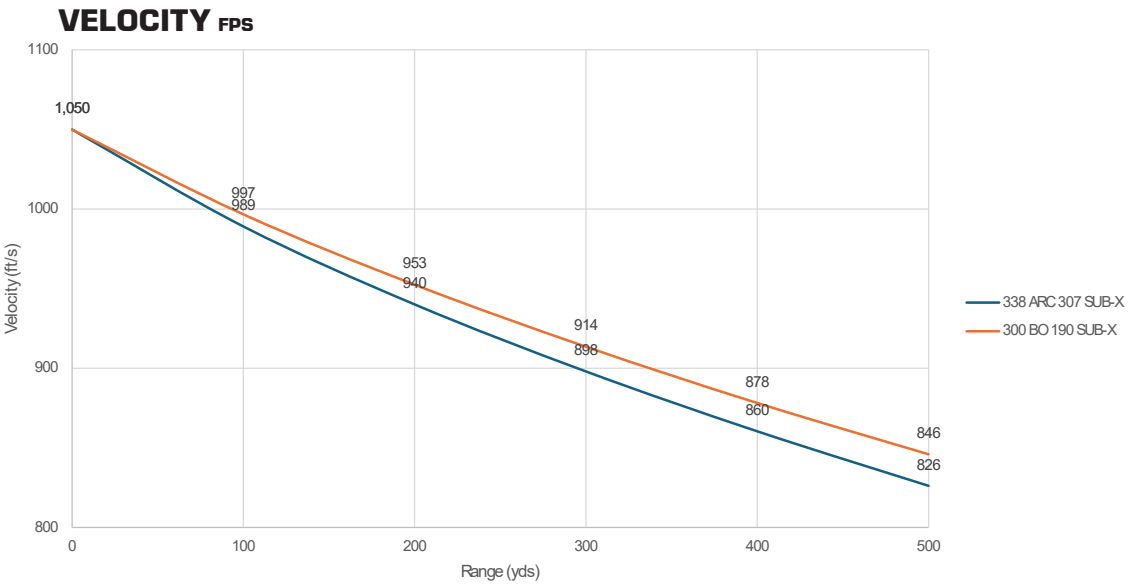
- **Box Weight:** 1.35 lbs.
- **Dimensions:** 1.25" x 2.50" x 5.12"
- 20 rounds per box with tray



- **Carton Weight:** 13.5 lbs./ 6.12 kg.
- **Dimensions:** 5.62" x 5.25" x 6.25"
14.3 x 13.3 x 15.9 cm
- 10 boxes/ 200 rounds per carton

*Canned and crated options available.

338 ARC
307 gr SUB-X®



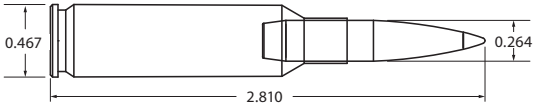
6.5 CREEDMOOR
135 gr A-TIP®



ITEM NO. 81503

Performance Characteristics:

- Match accuracy
- Efficient Design
- Minimal Positional Sensitivity
- Minimal deflection on glass
- MADE IN THE USA
- Net Explosive Weight: 0.1184 lbs. /0.0537 kg. (approx. per box)



CASE: 6.5 CREEDMOOR



- Caliber designation: 6.5 CREEDMOOR, imprinted on case head
- Characteristics: Quality Annealed Brass

BULLET: A-TIP®



- Ballistic Coefficient: (G1) 0.637"/ (G7) 0.321"
- Sectional Density: 0.277"
- Bullet Length: 1.387"
- Recommendad Rifling Twist Rate: 1:8"
- Characteristics: Match Grade, Boattail, Aluminum Tip
- Push/Pull: 70/70 Minimum (lbs.)

POWDER & PRIMER



- Powder: Temperature stable with Flash Suppressant
- Primer: Large rifle, Boxer

LOT NUMBERS

- Lot numbers on each box and case carton

BALLISTIC DATA - 20" Test Barrel

	Muzzle	100 yds	200 yds	300 yds	400 yds	500 yds
Velocity (fps)	2800	2657	2518	2384	2254	2127
Energy (ft lbs)	2350	2116	1901	1703	1522	1356
Trajectory (in)	-1.5	0	-3.4	-12.3	-27.4	-49.3

PACKAGING



- 20 ct. Tray: Item No. 8408L



- Box Weight: 1.10 lbs.
- 20 rounds per box with tray

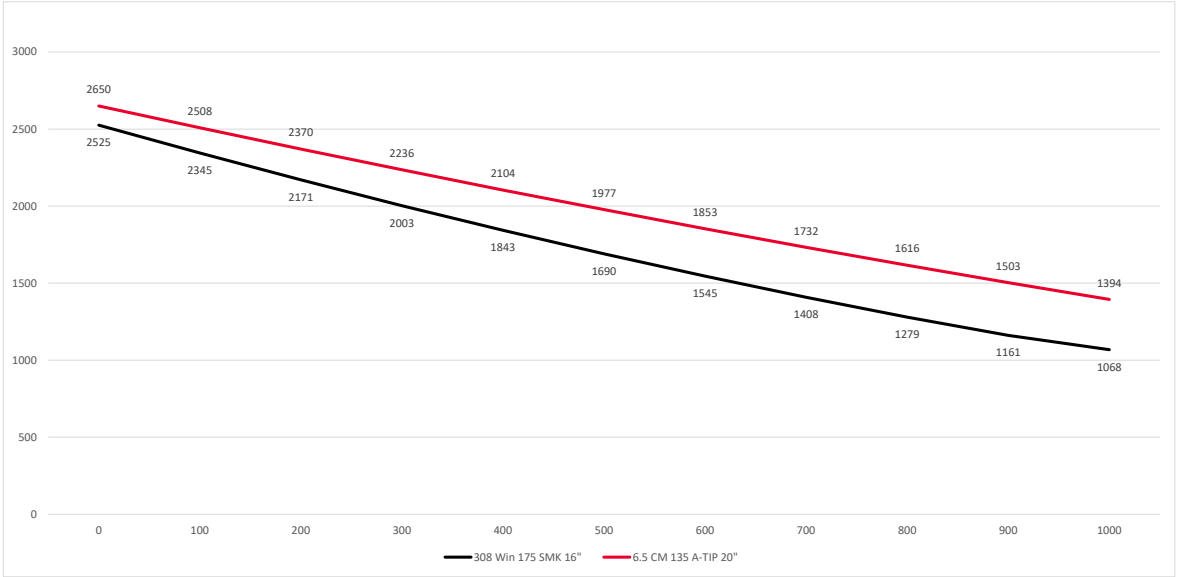


- Carton Weight: 11.00 lbs.
- Dimensions: 5.88" x 6.44" x 8.25"

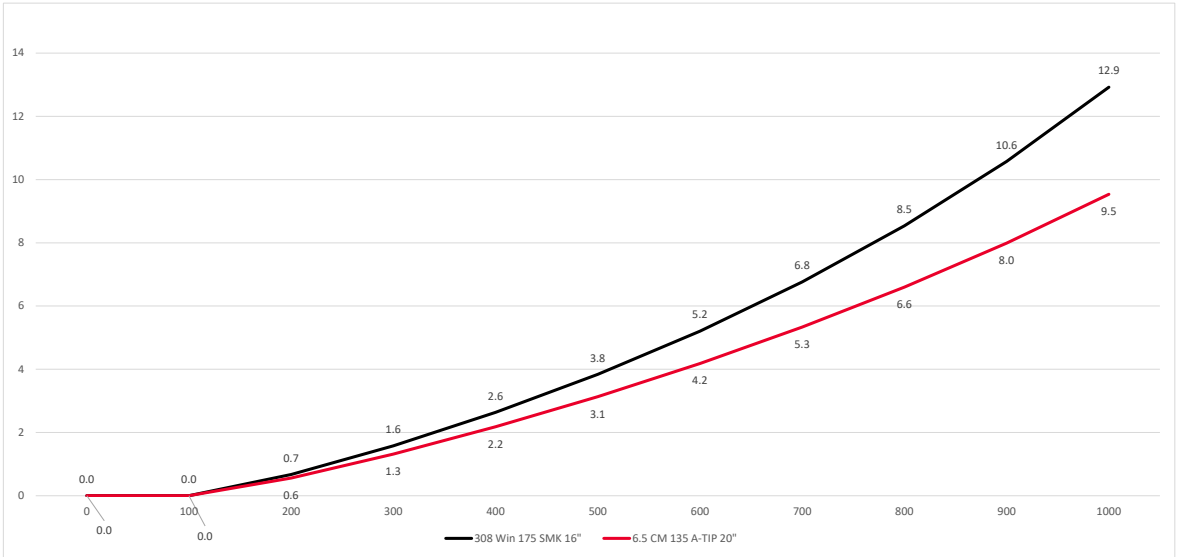
*Canned and crated options available.

6.5 CREEDMOOR
135 gr A-TIP®

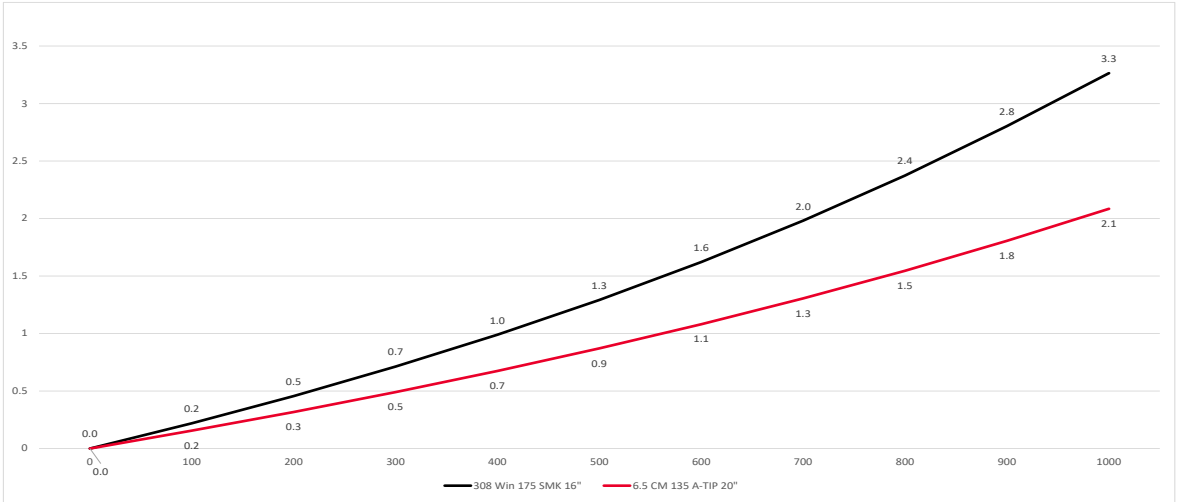
VELOCITY FPS



ELEVATION MRAD



WIND MRAD





6.5 CREEDMOOR

147 gr ELD® MATCH



ITEM NO. 81507

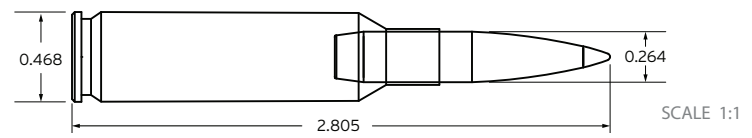
Performance Characteristics:

- Match accuracy
- Minimal deflection on glass
- Large wound cavities
- Meets FBI barrier penetration protocol
- High Retained Weight
- MADE IN THE USA
- **Net Explosive Weight** (approx. per box): 0.1274 lbs / .0558 kg

CASE: 6.5 CREEDMOOR

- Manufacturer's name (Hornady) and caliber designation (6.5 CREEDMOOR) imprinted on case head
- **Characteristics:** Match grade annealed brass alloy





BULLET: ELD® MATCH

- **Ballistic Coefficient:** .697
- **Sectional Density:** .301
- **Bullet Length:** 1.435"
- **Recommended Rifling**
Twist Rate: 1:7 to 1:8"
- **Characteristics:** Polymer tipped, Match grade
- **Push/Pull:** 70/70 minimum (lbs)



POWDER & PRIMER



- **Powder:** Temperature stable with Flash Suppressant
- **Primer:** Large rifle, Boxer

LOT NUMBERS

- Lot numbers on each box and case carton

	Muzzle	100 yds	200 yds	300 yds	400 yds	500 yds	600 yds	700 yds	800 yds	900 yds	1000 yds
Velocity (fps)	2600	2461	2325	2192	2063	1936	1813	1694	1580	1469	1362
Energy (ft lbs)	2206	1977	1765	1569	1388	1223	1073	937	814	705	606
Trajectory (in)	-1.5	0	-4.2	-14.9	-32.8	-58.9	-94.2	-140.2	-189.4	-254.1	-337.5

PACKAGING



- Tray: Item No. 8408



- **Box Weight:** 1.07 lbs.
- 20 rounds per box with tray



- Carton: Item No. 84511
- Carton Weight: 10.7 lbs
- Carton Dimensions: 5.875" x 6.437" x 8.0"
- 10 boxes per carton | 200 rounds per carton

*Canned and crated options available.

6.5 CREEDMOOR

147 gr ELD® MATCH

VELOCITY FPS

Range (yds)	6.5 CM 147 ELD Match (FPS)	7.62x51 AB39 175 SMK (FPS)
0	2600	2600
100	2461	2445
200	2325	2325
300	2192	2171
400	2063	2003
500	1936	1843
600	1813	1690
700	1694	1545
800	1580	1408
900	1469	1279
1000	1362	1161
1100	1258	1068
1200	1160	1019
1300	1082	981
1400	1034	949
1500	998	919

ELEVATION MRAD

Range (yds)	6.5 CM 147 ELD Match (MRAD)	7.62x51 AB39 175 SMK (MRAD)
0	0.0	0.0
100	0.0	0.0
200	0.6	0.7
300	1.4	1.6
400	2.3	2.6
500	3.3	3.8
600	4.4	5.2
700	5.6	6.8
800	6.9	8.5
900	8.3	10.6
1000	10.0	12.9
1100	11.7	15.6
1200	13.8	18.6
1300	16.0	21.9
1400	18.5	25.5
1500	21.3	29.4

WIND MRAD

Range (yds)	6.5 CM 147 ELD Match (MRAD)	7.62x51 AB39 175 SMK (MRAD)
0	0.0	0.0
100	0.2	0.3
200	0.5	0.7
300	0.7	1.0
400	0.9	1.3
500	1.1	1.6
600	1.3	2.0
700	1.6	2.4
800	1.9	2.8
900	2.1	3.3
1000	2.5	3.7
1100	2.8	4.1
1200	3.2	4.6
1300	3.5	4.9
1400	3.9	5.3

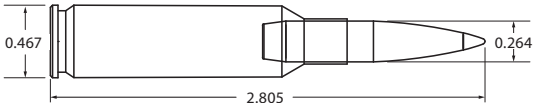
6.5 CREEDMOOR
153 gr A-TIP®



ITEM NO. 81476

Performance Characteristics:

- Match accuracy
- Stringent Quality Control
- Consistent Lot-Lot pressure and velocity
- Cartride Overall Length (COL): 2.805"
- MADE IN THE USA
- Net Explosive Weight: 0.1357 lbs. /0.0615 kg. (approx. per box)



CASE: 6.5 CREEDMOOR



- Caliber designation: 6.5 CREEDMOOR, imprinted on case head
- Characteristics: Quality Annealed Brass
- Center-Fired, Large Rifle Primer Pocket Case

BULLET: A-TIP®



- Ballistic Coefficient: (G1) 0.704"/ (G7) 0.355"
- Sectional Density: 0.314"
- Bullet Length: 1.524"
- Recommendad Rifling Twist Rate: 1:8"
- Characteristics: Match Grade, Boattail, Aluminum Tip
- Push/Pull: 70/70 Minimum (lbs.)

POWDER & PRIMER



- Powder: Temperature stable with Flash Suppressant
- Primer: Large rifle, Boxer

LOT NUMBERS

- Lot numbers on each box and case carton

BALLISTIC DATA - 20" Test Barrel

	Muzzle	100 yds	200 yds	300 yds	400 yds	500 yds	600 yds	700 yds	800 yds	900 yds	1000 yds
Velocity (fps)	2600	2474	2351	2231	2114	2001	1890	1781	1676	1573	1474
Energy (ft lbs)	2296	2079	1877	1691	1519	1359	1213	1078	954	841	768
Trajectory (in)	-1.5	0	-4.1	-14.6	-32	-57.3	-91.2	-134.8	-189.4	-254.1	-337.5

PACKAGING



- 20 ct. Tray: Item No. 8408L



- Box Weight: 1.20 lbs.
- 20 rounds per box with tray

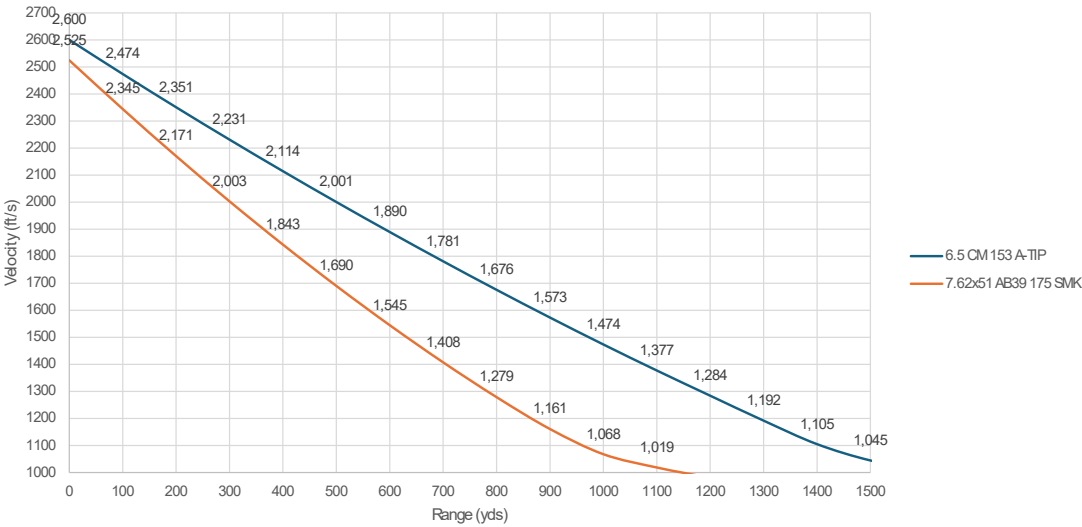


- Carton Weight: 12.00 lbs.
- Dimensions: 5.88" x 6.44" x 8.25"

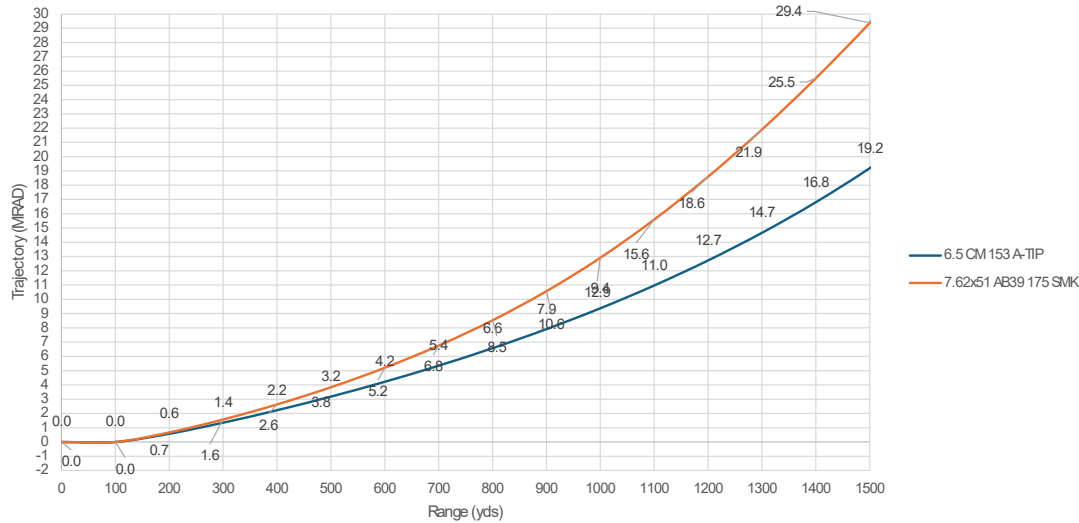
*Canned and crated options available.

6.5 CREEDMOOR
153 gr A-TIP®

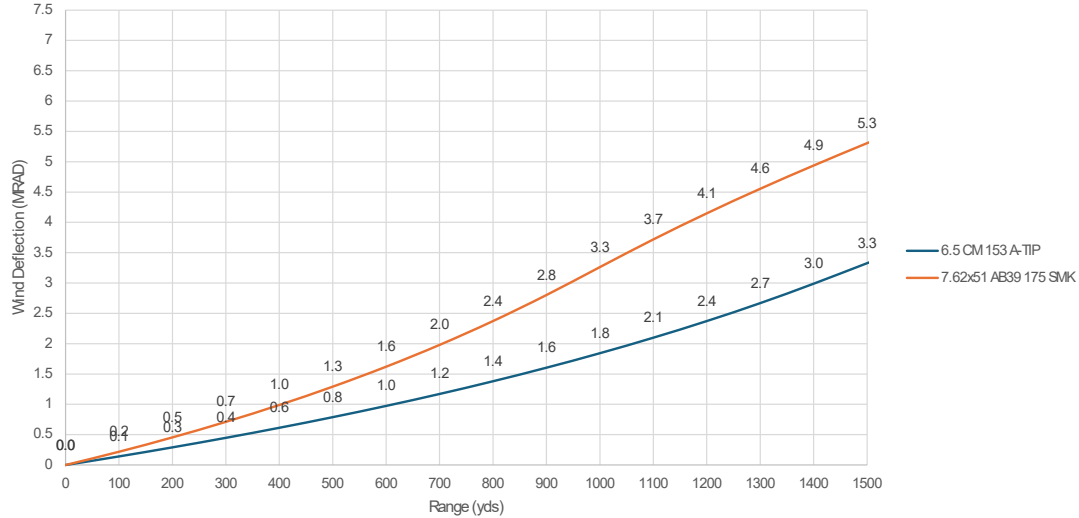
VELOCITY FPS



ELEVATION MRAD



WIND MRAD



7 PRC
190 gr A-TIP®



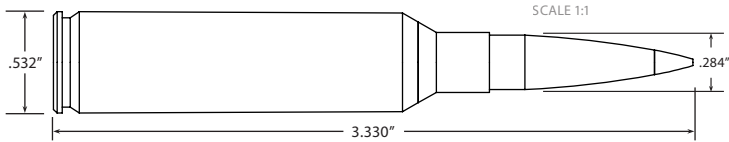
ITEM NO. 80716

- Performance Characteristics:
• Match accuracy
• Efficient Design
• Minimal Positional Sensitivity
• Minimal deflection on glass
• MADE IN THE USA
• Net Explosive Weight: 0.1816 lbs./ 0.0823 kg. (approx. per box)



CASE: 7 PRC

- Caliber designation: 7 PRC, imprinted on case head
• Characteristics: High Quality Brass Alloy



BULLET: A-TIP®

- Ballistic Coefficient: .838
• Sectional Density: .337
• Bullet Length: 1.870"
• Recommended Rifling Twist Rate: 1:8"
• Characteristics: Match Grade, Boattail, Aluminum Tip
• Push/Pull: 50/50



POWDER & PRIMER

- Powder: Temperature stable with flash suppressant
• Primer: Large Rifle Magnum



LOT NUMBERS

- Lot numbers on each box and case carton

BALLISTIC DATA - 24" Test Barrel

Table with 7 columns: Muzzle, 100 yds, 200 yds, 300 yds, 400 yds, 500 yds. Rows include Velocity (fps), Energy (ft lbs), and Trajectory (in).

PACKAGING



- 20 ct. Tray: Item No. 8413



- Box Weight: 1.85 lbs.
• 20 rounds per box with tray

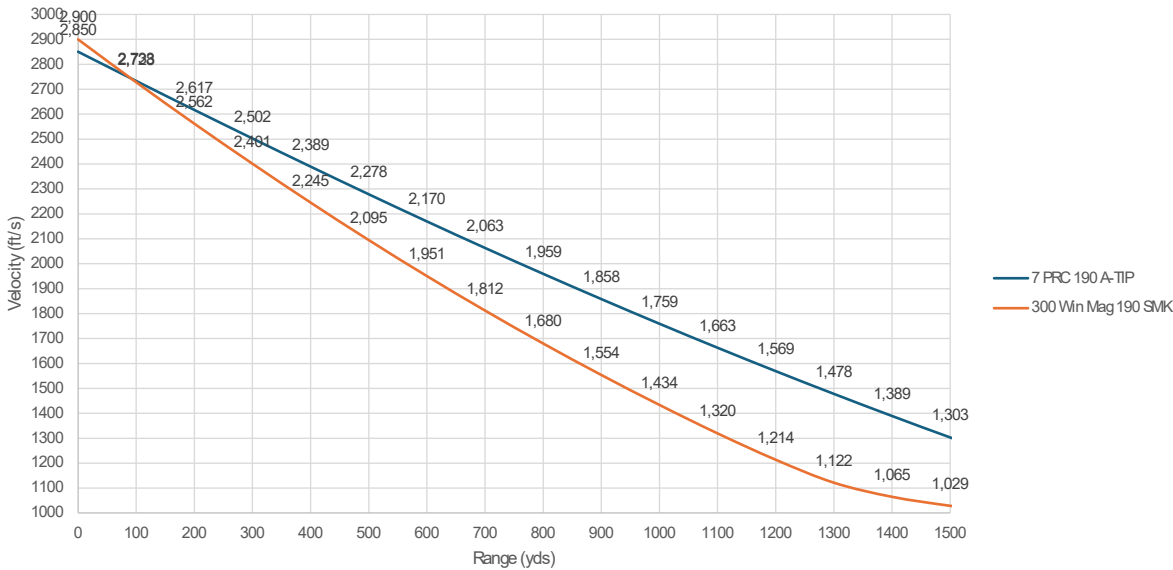


- Carton Weight: 18.5 lbs.
• Dimensions: 7" x 7.625" x 8.937"
• 10 boxes/ 200 rounds per carton

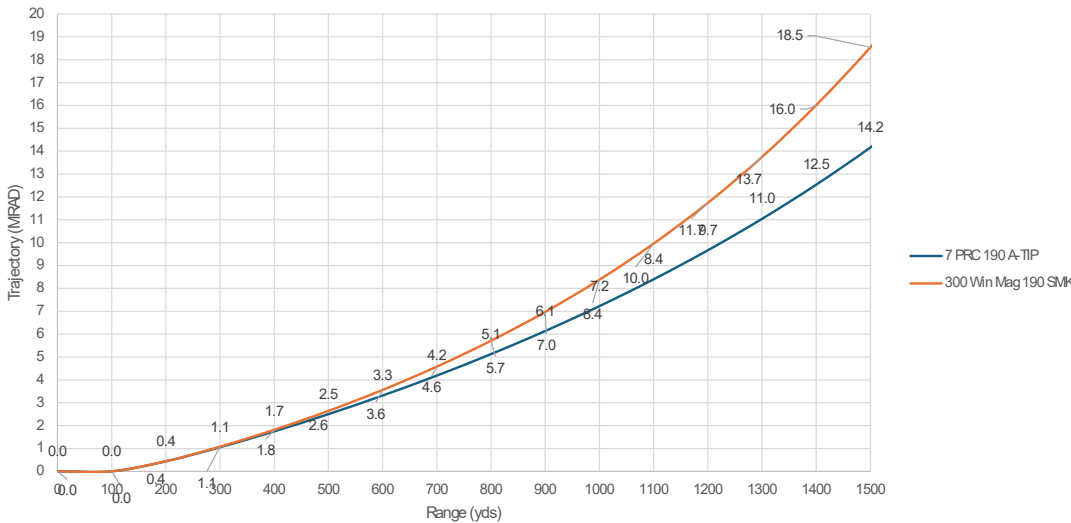
*Canned and crated options available.

7 PRC
190 gr A-TIP®

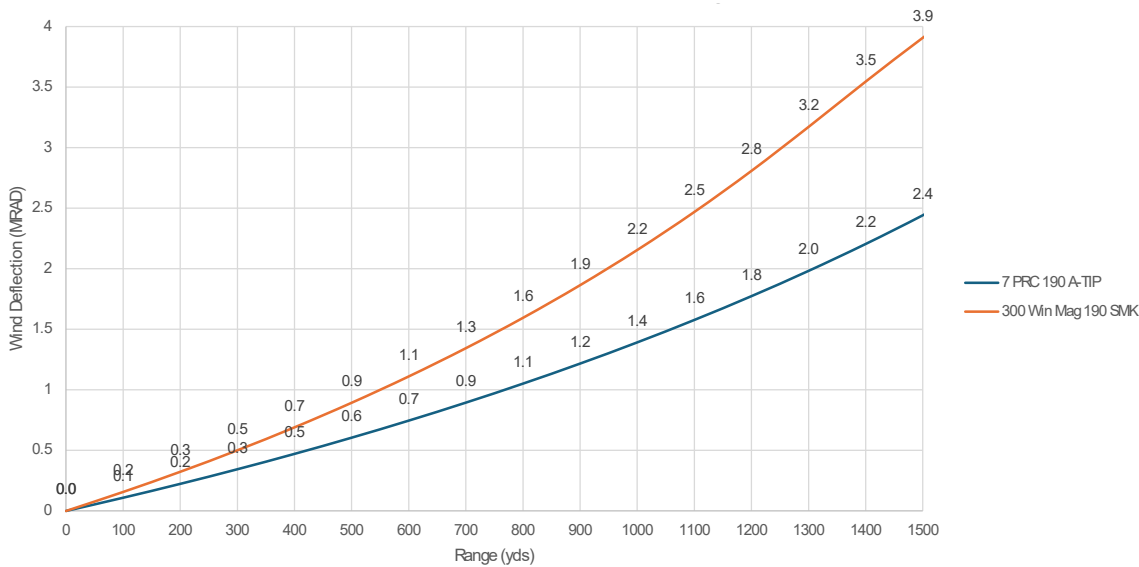
VELOCITY FPS



ELEVATION MRAD



WIND MRAD



300 PRC
250 gr A-TIP®



ITEM NO. 82169

Performance Characteristics:

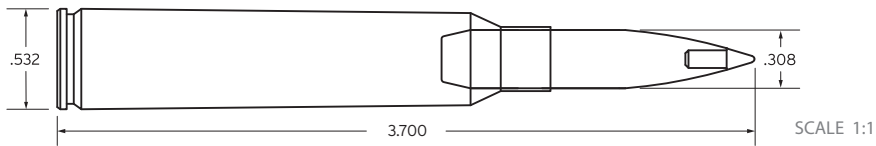
- Match accuracy
- Efficient Design
- Minimal Positional Sensitivity
- Minimal deflection on glass
- MADE IN THE USA
- **Net Explosive Weight:** 0.2618 lbs./ 0.1187 kg. (approx. per box)



CASE: 300 PRC



- **Caliber designation:** 300 PRC, imprinted on case head
- **Characteristics:** High Quality Brass Alloy



BULLET: A-TIP®



- **Ballistic Coefficient:** .878
- **Sectional Density:** .377
- **Bullet Length:** 1.870"
- **Recommended Rifling Twist Rate:** 1:8"
- **Characteristics:** Match Grade, Boattail, Aluminum Tip
- **Push/Pull:** 50/50

POWDER & PRIMER



- **Powder:** Temperature stable with flash suppressant
- **Primer:** Large Rifle Magnum

LOT NUMBERS

- Lot numbers on each box and case carton

BALLISTIC DATA - 24" Test Barrel

	Muzzle	100 yds	200 yds	300 yds	400 yds	500 yds
Velocity (fps)	2650	2548	2448	2350	2255	2161
Energy (ft lbs)	3989	3603	3326	3066	2822	2593
Trajectory (in)	-1.5	0	-3.9	-13.5	-29.5	-52.3

PACKAGING



- **20 ct. Tray:** Item No. 8413



- **Box Weight:** 1.85 lbs.
- 20 rounds per box with tray

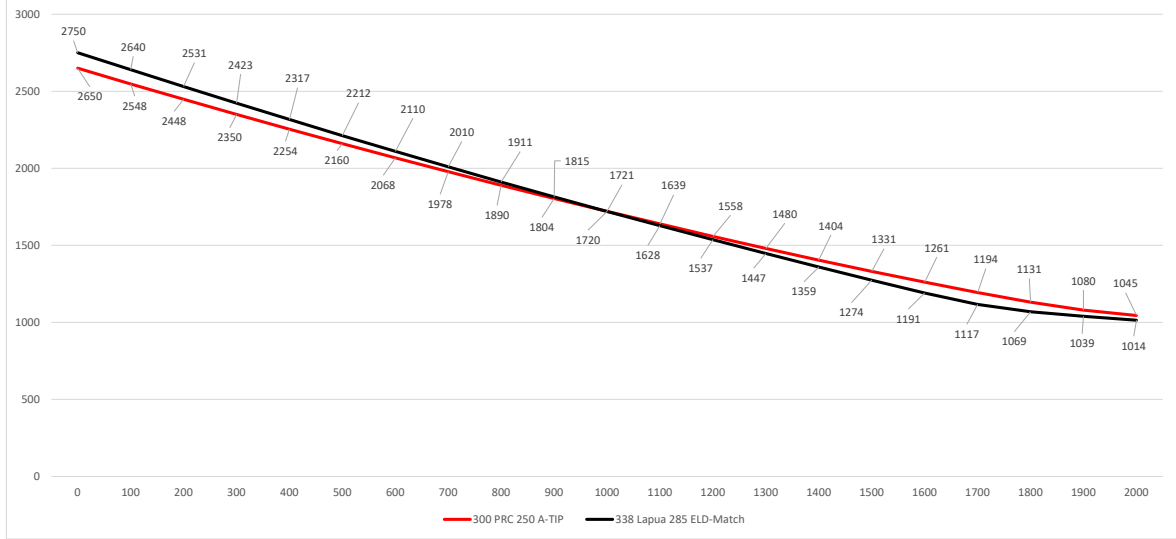


- **Carton Weight:** 18.5 lbs.
- **Dimensions:** 7" x 7.625" x 8.937"
- 10 boxes/ 200 rounds per carton

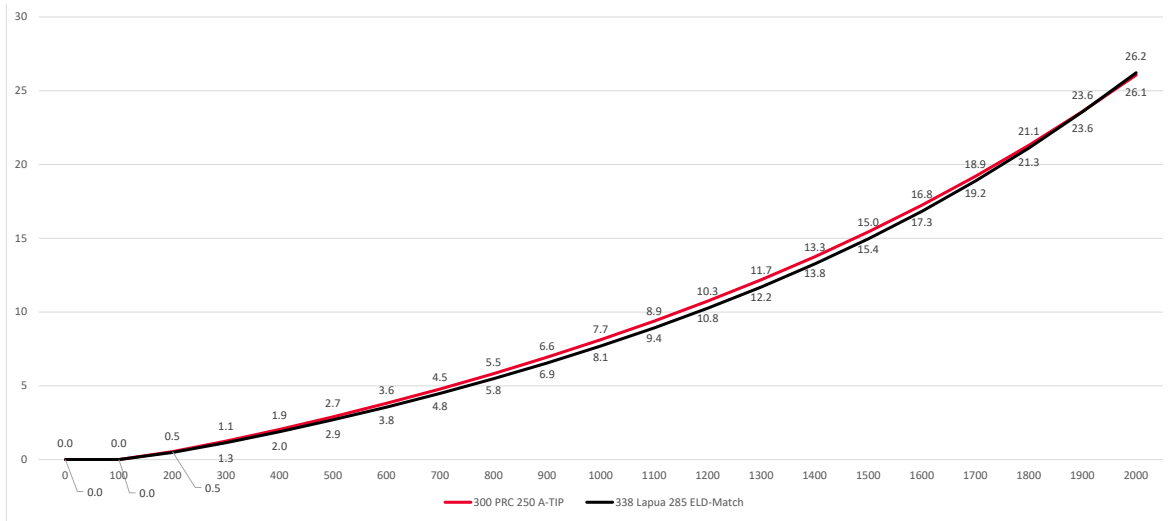
*Canned and crated options available.

300 PRC
250 gr A-TIP®

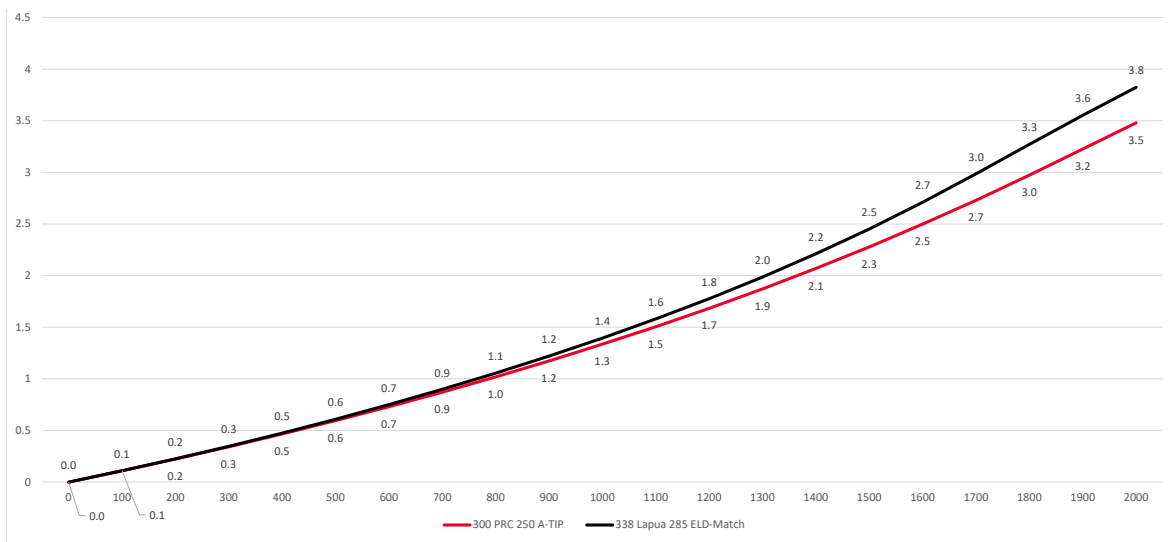
VELOCITY FPS



ELEVATION MRAD



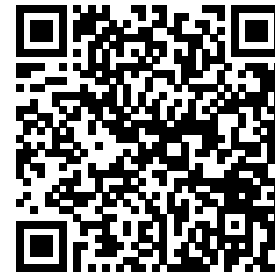
WIND MRAD



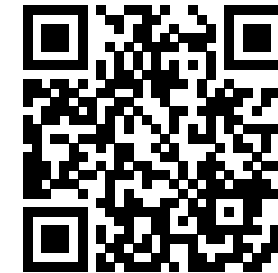
NOTES

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4DOF VIDEOS



Why Use 4DOF?



Rifle Profile Setup



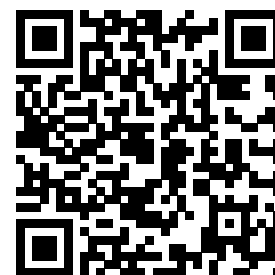
4DOF Tips & Tricks



4DOF | The Backstory

FREE DOWNLOAD

Hornady Ballistic App with 4DOF®



SCOTT JAVINS
LE PRODUCT MANAGER
sjavins@hornady.com
1-800-338-3220 EXT 731

