

Combined Test Data

Test: Hitting Identical Balls Both Warmed and Cold

The Data Combined Robot Testing and Live Testing

Equipment Used: Iron Byron Type Robot and Trackman Doppler Radar

Number of Golf Balls Hit During Test: 920

Due to the Request of the Manufacturers the Specific Ball is not Identified in this Report but the Following Balls Were Tested:

Titleist Pro V1
 Titleist NXT Tour
 Taylormade Penta
 Taylormade Burner
 Nike Tour ONE
 Noodle
 Srixon Star Z
 Srixon AD333
 Callaway Big Bertha
 Bridgestone e6

Ball:	Distance Ball Warm	Swing Data										Launch Data					Flight Data				Descent Data			Landing Data				Wind	
		A/A	Club Path	Vert. SP	Horiz. SP	Dyn. Loft	F/A	H/S	B/S	Ratio	L/A	H L/A	SPIN	SPIN AXIS	MAX HIGHT	DR. MAX HIGHT	VERT. LAND	B/S	F TIME	C-DISP	C-DIST	T-DISP	T-DIST	ROLL	VEL				
Ball:	Distance Ball Warm																												
	Center Hits																												
	Avg.	-1.8	-2.2	54.3	-3.5	12.5	-3.3	109.8	157.0	1.4	10.6	-3.2	2997.1	5.9	161.9	30.1	-44.1	59.2	6.5	24.0	249.7	25.5	268.5	18.7	6.0				
	S/D	0.2	0.3	0.3	0.2	0.1	0.5	1.4	0.0	0.0	0.0	0.4	99.3	2.8	2.8	0.4	0.8	0.7	0.0		3.1		5.9	3.5	2.0				
Ball:	Distance Ball Cold																												
	Center Hits																												
	Avg.	-2.0	-2.2	53.6	-3.7	12.8	-3.4	110.0	157.3	1.4	10.4	-3.2	3843.0	-0.7	164.5	34.7	-51.1	60.5	6.9	5.7	235.0	9.2	249.3	14.3	8.0				
	S/D	0.1	0.6	0.8	0.7	0.4	0.3	0.5	1.2	0.0	0.3	0.4	82.2	1.3	1.0	2.1	2.7	1.2	0.2		2.0		4.0	3.8	6.0				
Ball:	Tour Ball Warm																												
	Center Hits																												
	Avg.	-1.9	-1.9	54.6	-3.2	12.8	-3.2	109.9	158.8	1.4	10.4	-3.0	3673.1	4.7	168.7	38.8	-55.2	63.9	7.2	22.9	251.3	20.7	271.9	18.8	7.5				
	S/D	0.6	0.6	0.7	0.1	0.7	0.4	0.5	0.9	0.0	0.6	0.3	130.5	2.6	0.4	1.3	0.7	1.3	0.1		2.1		5.9	4.2	4.4				
Ball:	Tour Ball Cold																												
	Center Hits																												
	Avg.	-2.2	-1.9	55.0	-3.5	12.9	-3.1	110.2	157.1	1.4	10.7	-2.9	3468.3	-4.7	169.4	36.6	-52.7	63.4	7.1	18.2	239.3	23.8	255.3	17.3	7.8				
	S/D	0.4	0.1	0.3	0.2	0.2	0.1	0.7	0.9	0.0	0.4	0.1	403.0	3.9	3.1	2.8	4.7	2.6	0.2		1.3		4.0	4.7	3.9				
Ball:	Distance Ball 2 Warm																												
	Center Hits																												
	Avg.	-1.6	-1.6	54.7	-2.8	13.5	-2.6	109.4	157.0	1.4	11.5	-2.5	3129.3	-0.3	168.4	38.7	-53.5	65.0	7.2	28.2	246.8	25.2	267.1	20.7	9.7				
	S/D	0.1	0.5	0.6	0.6	0.9	0.4	1.3	1.4	0.0	1.0	0.4	247.1	4.7	1.8	1.6	3.0	1.4	0.1		1.7		8.1	6.4	1.5				
Ball:	Distance Ball 2 Cold																												
	Center Hits																												
	Avg.	-1.4	-1.6	54.4	-2.7	13.4	-2.9	108.9	156.3	1.4	11.2	-2.7	3394.5	-2.6	166.6	38.4	-53.7	63.4	7.2	14.4	236.3	18.1	248.3	12.0	11.7				
	S/D	0.3	0.4	0.8	0.6	0.6	0.3	0.8	1.1	0.0	0.4	0.4	519.6	0.5	0.6	3.2	3.4	0.9	0.2		3.2		8.5	5.3	2.1				
Ball:	Tour Ball 2 Warm																												
	Center Hits																												
	Avg.	-1.5	-1.7	54.5	-2.8	13.4	-2.5	110.7	158.2	1.4	11.3	-2.4	3237.1	5.4	171.3	38.1	-52.3	65.9	7.1	28.9	247.0	40.2	262.7	14.0	9.3				
	S/D	0.2	0.5	0.8	0.5	0.7	0.3	1.5	1.3	0.0	0.7	0.3	85.3	6.7	4.3	2.0	1.9	1.2	0.1		5.6		11.3	6.6	4.2				
Ball:	Tour Ball 2 Cold																												
	Center Hits																												
	Avg.	-0.9	-2.0	54.2	-2.6	13.1	-3.0	110.5	157.8	1.4	10.7	-2.8	3869.0	-1.3	164.6	39.3	-56.5	63.0	7.2	18.9	230.7	17.9	246.0	15.3	9.0				
	S/D	0.4	0.3	1.0	0.3	0.9	0.4	1.7	0.6	0.0	0.8	0.4	153.1	3.9	2.3	6.1	3.5	3.4	0.3		3.8		2.6	5.7	2.6				

Swing Data										Launch Data				Flight Data				Descent Data			Landing Data				Wind	
A/A	Club Path	Vert. SP	SP	Horiz. SP	Dyn. SP	Loft	F/A	H/S	B/S	Ratio	L/A	H L/A	SPIN	SPIN AXIS	MAX HIGHT	DR. MAX HIGHT	VERT. LAND	B/S	F TIME	C-DISP	C-DIST	T-DISP	T-DIST	ROLL	VEL	
Ball:	Performance Ball Warm																									
	Center Hits																									
	Avg.	-1.7	-1.1	54.1	-2.3	13.5	-3.1	109.3	160.0	1.5	11.6	-2.8	3046.8	1.3	176.4	41.9	-53.3	68.8	7.3	13.6	252.4	14.6	266.2	13.7	11.0	
	S/D	0.2	0.4	0.7	0.5	0.5	0.2	0.6	0.7	0.0	0.5	0.2	83.4	1.8	2.4	3.3	2.3	2.0	0.2		3.1		4.6	4.0	3.6	
Ball:	Performance Ball Cold																									
	Center Hits																									
	Avg.	-1.7	-1.4	53.3	-2.7	13.4	-2.9	111.1	158.4	1.4	11.1	-2.7	3727.8	-0.3	170.5	43.0	-57.7	65.7	7.5	23.1	237.3	27.1	246.7	9.3	8.0	
	S/D	0.1	0.2	1.9	0.2	0.7	0.5	1.1	0.3	0.0	0.7	0.4	94.0	6.6	4.5	2.0	1.0	2.2	0.1		6.7		8.7	2.1	2.0	
Ball:	Tour Ball 3 Warm																									
	Center Hits																									
	Avg.	-1.4	-1.8	54.5	-2.8	13.7	-2.7	109.1	159.6	1.5	11.4	-2.5	3747.2	2.1	175.2	42.4	-56.1	67.9	7.4	17.1	245.3	19.9	259.4	13.3	8.0	
	S/D	0.3	0.5	0.3	0.7	0.5	0.2	0.7	0.6	0.0	0.5	0.3	32.2	3.0	1.8	2.8	1.8	1.7	0.1		2.0		9.3	7.5	1.7	
Ball:	Tour Ball 3 Cold																									
	Center Hits																									
	Avg.	-1.8	-1.0	54.4	-2.3	13.8	-2.7	110.0	157.6	1.4	11.2	-2.4	4093.3	0.3	165.3	39.0	-54.8	62.9	7.2	51.3	230.3	55.0	242.0	11.7	7.0	
	S/D	0.7	0.1	0.6	0.4	0.3	0.2	1.0	0.4	0.0	0.2	0.1	174.9	7.7	2.6	2.7	2.1	3.8	0.1		1.5		3.0	2.9	1.7	
Ball:	Distance Ball 2 Warm																									
	Center Hits																									
	Avg.	-1.2	-1.1	53.3	-2.0	14.0	-2.9	109.9	157.1	1.4	12.1	-2.7	2942.4	0.0	172.6	39.9	-51.4	67.6	7.2	34.2	251.8	38.9	274.9	19.0	8.3	
	S/D	0.4	0.3	1.5	0.2	0.2	0.1	0.4	0.5	0.0	0.2	0.1	76.7	6.1	2.7	1.9	2.1	2.3	0.1		6.6		13.1	7.0	5.9	
Ball:	Distance Ball 2 Cold																									
	Center Hits																									
	Avg.	-1.6	-1.1	54.5	-2.2	13.7	-3.1	110.8	156.6	1.4	11.6	-2.8	3386.7	-1.9	169.1	36.9	-50.9	62.4	7.2	7.6	239.0	6.9	259.3	20.3	9.3	
	S/D	0.2	0.1	0.5	0.2	0.3	0.4	0.6	0.8	0.0	0.3	0.4	82.4	2.3	1.4	1.3	2.5	1.0	0.1		2.0		9.3	7.5	4.2	
Ball:	Distance Ball 3 Warm																									
	Center Hits																									
	Avg.	-1.3	-0.9	53.1	-1.9	13.7	-3.3	110.9	158.4	1.4	11.6	-2.9	3240.8	2.6	171.5	42.5	-53.9	70.0	7.1	17.8	248.3	23.4	268.1	15.7	7.3	
	S/D	0.4	0.4	1.5	0.2	0.1	0.1	2.0	0.5	0.0	0.2	0.1	278.0	3.8	3.3	2.0	2.5	0.7	0.1		5.5		11.4	7.5	5.0	
Ball:	Distance Ball 3 Cold																									
	Center Hits																									
	Avg.	-1.7	-0.5	54.0	-1.7	14.0	-2.8	110.6	157.9	1.4	11.7	-2.5	3641.9	-3.8	169.9	42.8	-56.9	67.6	7.4	7.1	237.7	10.8	247.3	9.7	9.3	
	S/D	0.3	1.1	1.2	0.9	0.4	0.4	2.0	0.6	0.0	0.2	0.3	363.3	0.8	2.0	1.6	2.5	0.9	0.1		5.0		5.7	2.1	2.3	
Ball:	Performance Ball 2 Warm																									
	Center Hits																									
	Avg.	-1.3	-1.4	53.9	-2.4	14.2	-2.7	109.7	157.2	1.4	12.4	-2.6	2832.4	4.9	170.9	38.4	-49.6	67.1	7.0	23.8	254.9	26.1	279.0	23.0	6.7	
	S/D	0.2	0.1	0.3	0.2	0.3	0.1	0.5	0.4	0.0	0.2	0.1	109.4	4.4	1.2	1.7	1.5	1.2	0.1		2.5		3.8	2.0	0.6	
Ball:	Performance Ball 2 Cold																									
	Center Hits																									
	Avg.	-1.2	-1.3	54.0	-2.2	14.0	-2.8	111.3	156.0	1.4	11.9	-2.6	3276.8	1.0	169.6	38.2	-51.1	64.3	7.2	10.2	241.7	8.2	262.3	20.7	10.0	
	S/D	0.2	0.1	0.2	0.1	0.2	0.2	2.9	0.8	0.0	0.3	0.2	143.9	1.9	0.9	2.0	1.9	1.5	0.1		3.1		7.1	10.0	3.5	
Ball:	Tour Ball 4 Warm																									
	Center Hits																									
	Avg.	-1.3	-1.0	53.3	-2.0	14.0	-2.8	109.8	160.0	1.5	11.7	-2.5	3564.4	1.8	177.3	42.1	-54.2	68.0	7.4	18.7	251.4	20.3	268.0	14.0	4.3	
	S/D	0.1	0.4	1.3	0.2	0.1	0.2	0.5	0.7	0.0	0.1	0.3	194.0	3.1	3.8	1.9	2.2	1.4	0.1		3.6		2.6	6.1	2.5	
Ball:	Tour Ball 4 Cold																									
	Center Hits																									
	Avg.	-1.6	-0.9	54.2	-2.0	13.9	-2.9	110.7	159.2	1.4	11.3	-2.5	4099.3	5.6	171.4	41.0	-55.6	65.1	7.4	23.8	239.0	26.1	253.7	14.7	6.7	
	S/D	0.3	0.3	0.3	0.1	0.2	0.2	0.2	0.7	0.0	0.2	0.1	85.5	4.5	4.3	1.5	0.8	1.8	0.1		7.2		8.3	1.2	4.2	

Legend

A/A Attack Angle-Degrees
 Club Path Degrees
 Vert. SP Vertical Swing Plane-Degrees
 Horiz. SP Horizontal Swing Plane-Degrees
 Dyn. Loft Dynamic Loft-Degrees
 F/A Face Angle-Degrees

Spin Axis Side Spin Rotation
 MaxHt Dr Down Range Distance Ball Reaches Peak-Yards
 Max Height Yards
 Vert. Land Descent Angle of Golf Ball-Degrees
 B/S Ball Velocity at Impact-MPH
 F Time Flight Time of Ball-Seconds

H/S Head Speed-MPH
 B/S Ball Speed-MPH
 Ratio Ratio of Ball Speed to Head Speed
 L/A Launch Angle-Degrees
 H L/A Horizontal Launch Angle-Degrees

C-Disp Carry Dispersion (Ball Landing)-Feet
 C-Dist Carry Distance (Ball Landing)-Yards
 T-Disp Total Dispersion (Ball Stop)-Feet
 T-Dist Total Distance (Ball Stop)-Yards
 Roll Distance From Carry to Total-Yards