

# Asymmetric Layouts 2007

- **Maximum Hook & Arc**
  - Good for most House Shots
- **Mid-Lane Hook & Back-End**
  - A favorite for fresh PBA and Sport Conditions
- **Length & Back-End**
  - A favorite for broken down PBA and Sport Conditions
- **Length**
  - Good for most broken down House Shots
- **Full Roller Options**

# Maximum Hook & Arc

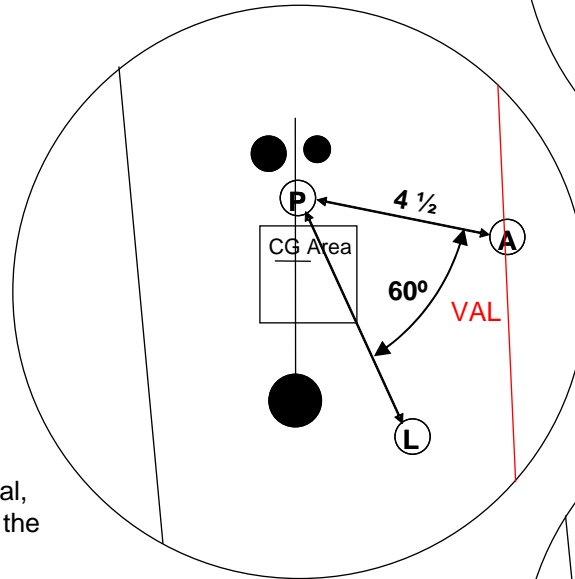
## Asymmetric Core

RGdiff - 0.040 or greater

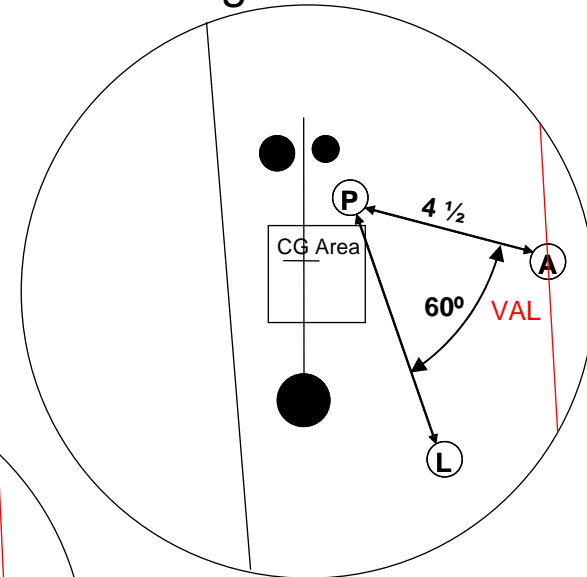
Asy RGdiff - 0.015 - 0.030

- Best pin out distance to use: 0 - 2 inches
- Pin from axis (A): 4 - 4 ½ inches
- Locator Pin set at 60°
- Rev's up early for maximum hook with a continuous back-end.

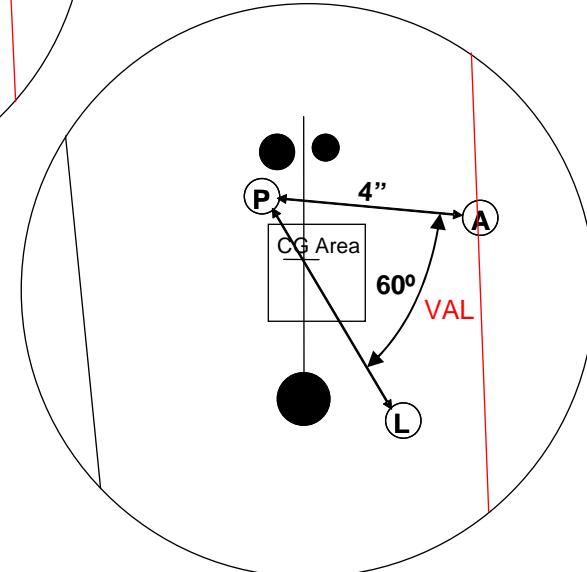
Medium Track



High Track



Low Track



- Note: If an X-hole is necessary to make the ball USBC legal, draw a line from the grip center through the CG and place the X-hole where it hits the VAL.
  1. (P) is the larger circle or pin on the ball that marks the top of the core.
  2. (L) is a smaller circle or pin that marks the Preferential Spin Axis (PSA) of the ball.
  3. For left-handed bowlers use the mirror images of these layouts.
- Note: Finger, thumb and X-holes must have at least a moderate bevel and the riser Pin (P) must be at least one inch from any drilled hole to comply with the Brunswick warranty.

# Mid-Lane Hook & Back-End

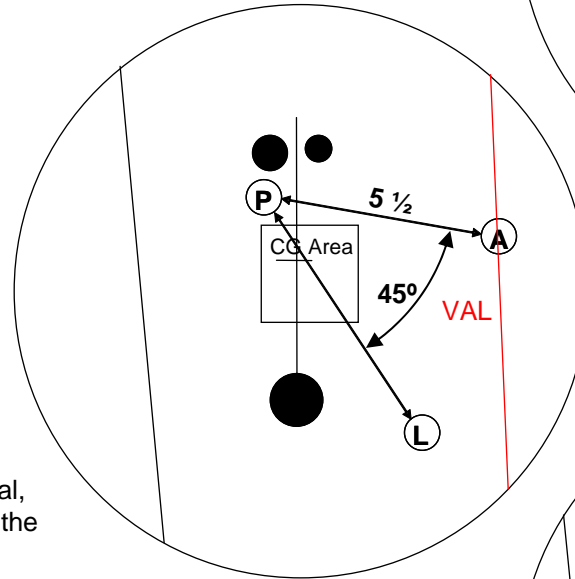
## Asymmetric Core

RG diff - 0.040 or greater

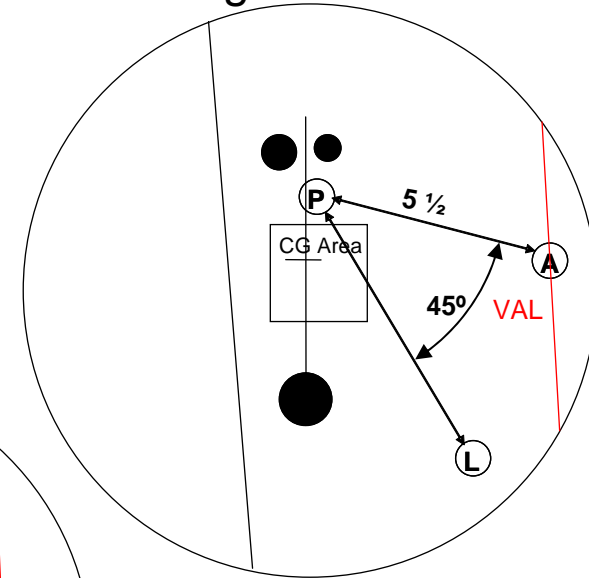
Asy RG diff - 0.015 - 0.030

- Best pin out distance to use: 0 - 2 inches
- Pin from axis (A): 5 - 5 ½ inches
- Locator Pin set at 45°
- This layout helps bowlers open up the mid-lane and recover on the heavy carry down.

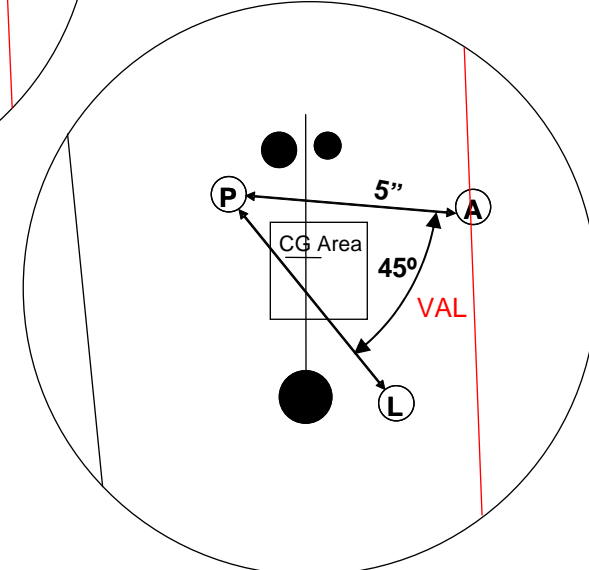
Medium Track



High Track



Low Track



- Note: If an X-hole is necessary to make the ball USBC legal, draw a line from the grip center through the CG and place the X-hole where it hits the VAL.
  1. (P) is the larger circle or pin on the ball that marks the top of the core.
  2. (L) is a smaller circle or pin that marks the Preferential Spin Axis (PSA) of the ball.
  3. For left-handed bowlers use the mirror images of these layouts.
- Note: Finger, thumb and X-holes must have at least a moderate bevel and the riser Pin (P) must be at least one inch from any drilled hole to comply with the Brunswick warranty.

# Length & Back-End

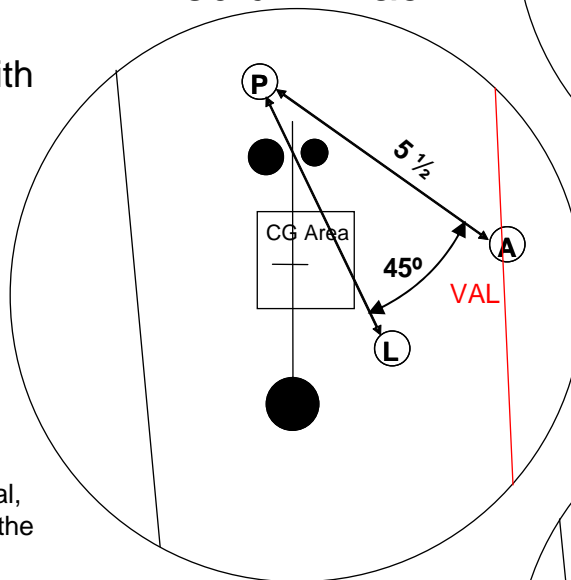
## Asymmetric Core

RG diff - 0.040 or greater

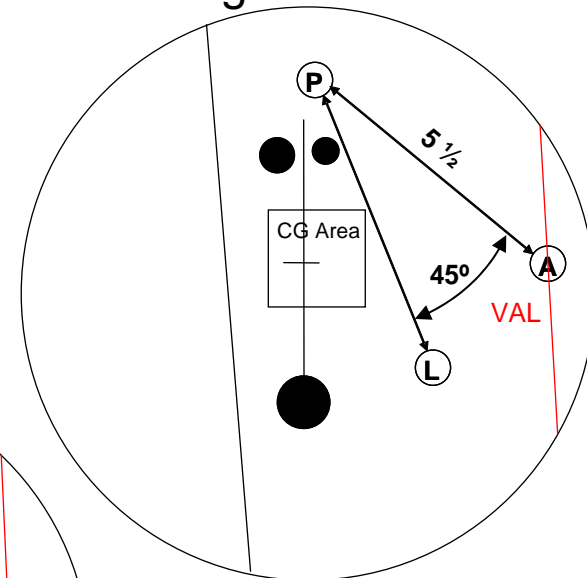
Asy RG diff - 0.015 - 0.030

- Best pin out distance to use: 3 ½ - 5 ½ inches
- Pin from axis (A): 5 - 5 ½ inches
- Locator Pin set at 45°
- This layout helps bowlers create length with a strong back-end.

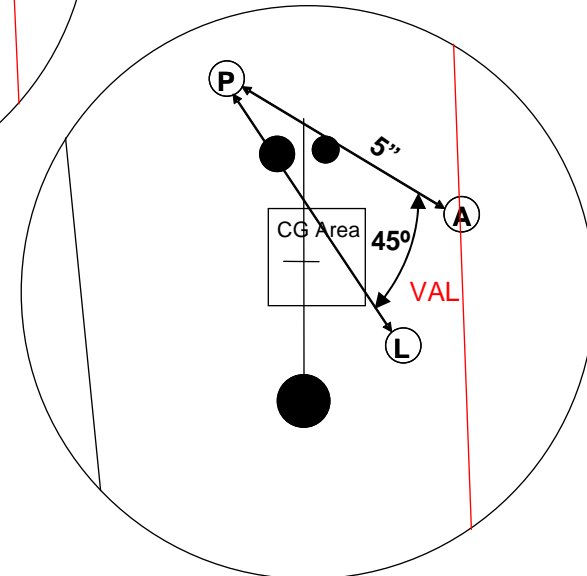
Medium Track



High Track



Low Track



- Note: If an X-hole is necessary to make the ball USBC legal, draw a line from the grip center through the CG and place the X-hole where it hits the VAL.
  1. (P) is the larger circle or pin on the ball that marks the top of the core.
  2. (L) is a smaller circle or pin that marks the Preferential Spin Axis (PSA) of the ball.
  3. For left-handed bowlers use the mirror images of these layouts.
- Note: Finger, thumb and X-holes must have at least a moderate bevel and the riser Pin (P) must be at least one inch from any drilled hole to comply with the Brunswick warranty.

# Length

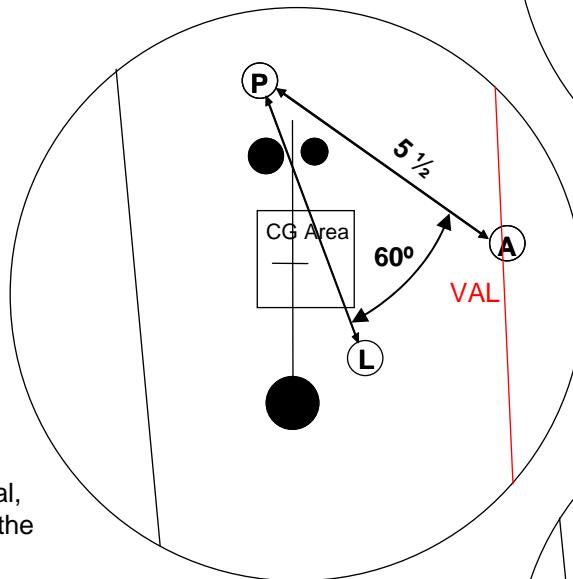
## Asymmetric Core

RG diff - 0.040 or greater

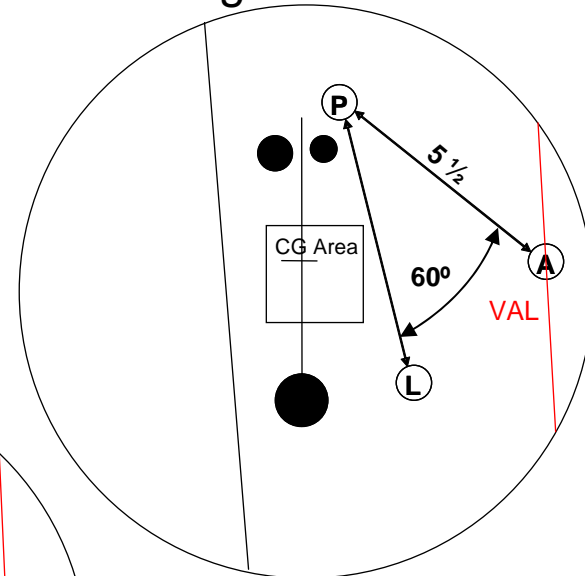
Asy RG diff - 0.015 - 0.030

- Best pin out distance to use: 3 - 5 ½ inches
- Pin from axis (A): 5 - 5 ½ inches
- Locator Pin set at 60°
- Length drilling with arcing back-end.

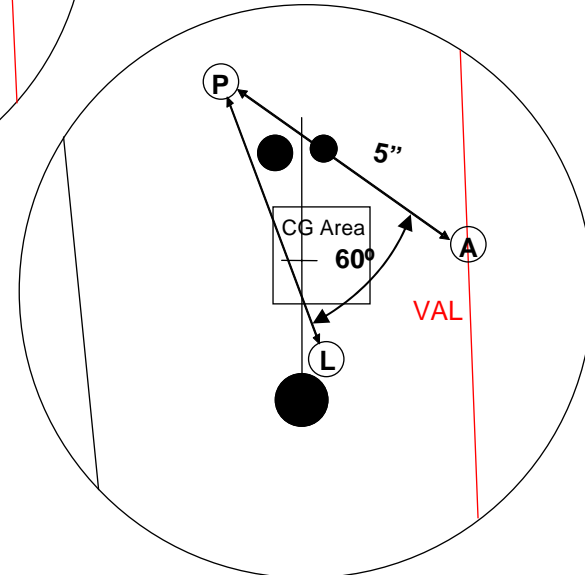
### Medium Track



### High Track



### Low Track



- Note: If an X-hole is necessary to make the ball USBC legal, draw a line from the grip center through the CG and place the X-hole where it hits the VAL.
  1. (P) is the larger circle or pin on the ball that marks the top of the core.
  2. (L) is a smaller circle or pin that marks the Preferential Spin Axis (PSA) of the ball.
  3. For left-handed bowlers use the mirror images of these layouts.
- Note: Finger, thumb and X-holes must have at least a moderate bevel and the riser Pin (P) must be at least one inch from any drilled hole to comply with the Brunswick warranty.

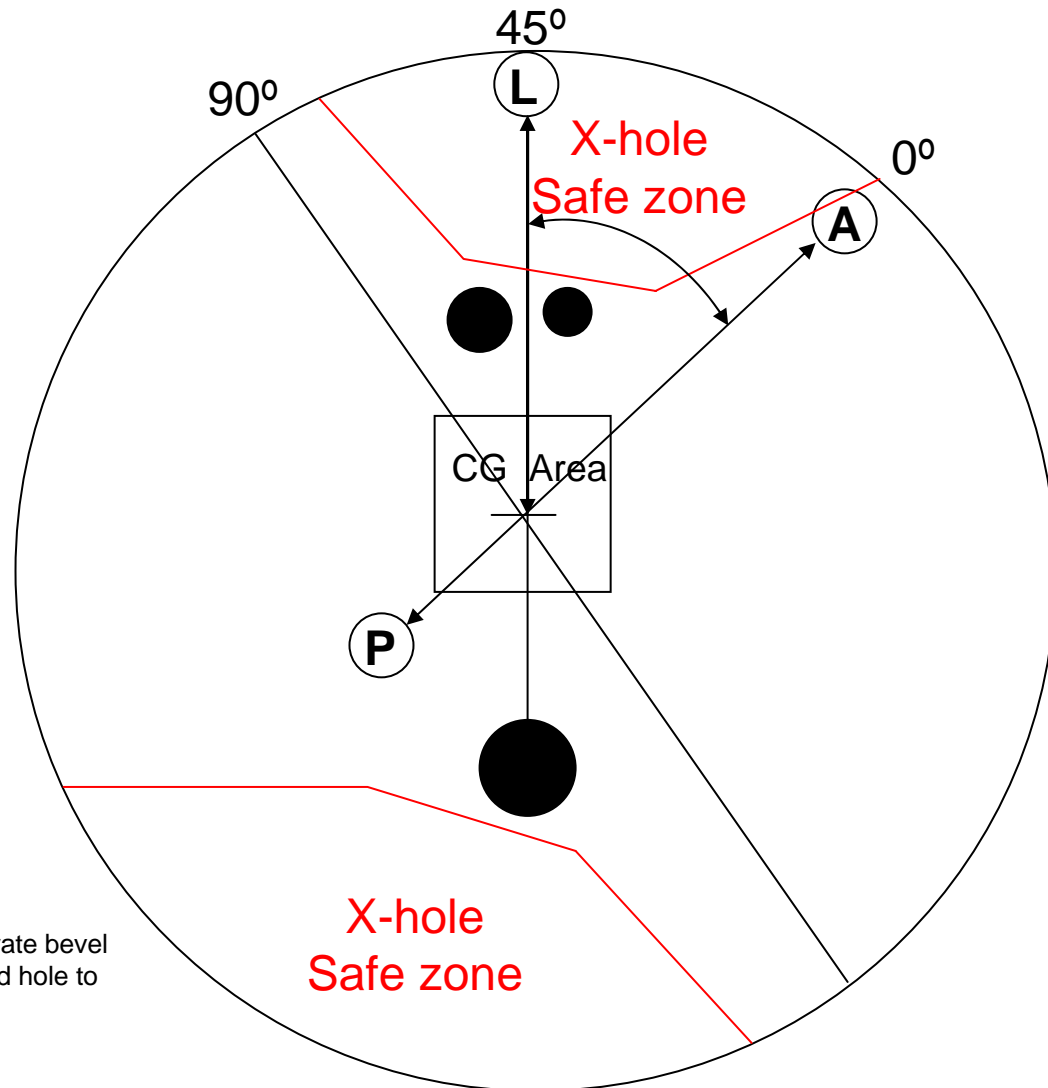
# Maximum Hook and Arc – Full Roller

## Asymmetric Core

RG diff - 0.040 or greater

Asy RG diff - 0.015 - 0.030

- Best pin out distance to use: 2 - 4 inches
- Pin from grip center : 3 inches
- Locator Pin set at 45°
- Rev's up early for maximum hook with and strong arcing back-end.



- Note: If an X-hole is needed place it in the X-hole safe zone 6" from center of grip to avoid contact with the track.
  1. (P) is the larger circle or pin on the ball that marks the top of the core.
  2. (L) is a smaller circle or pin that marks the Preferential Spin Axis (PSA) of the ball.
  3. For left-handed bowlers use the mirror images of these layouts.
- Note: Finger, thumb and X-holes must have at least a moderate bevel and the riser Pin (P) must be at least one inch from any drilled hole to comply with the Brunswick warranty.

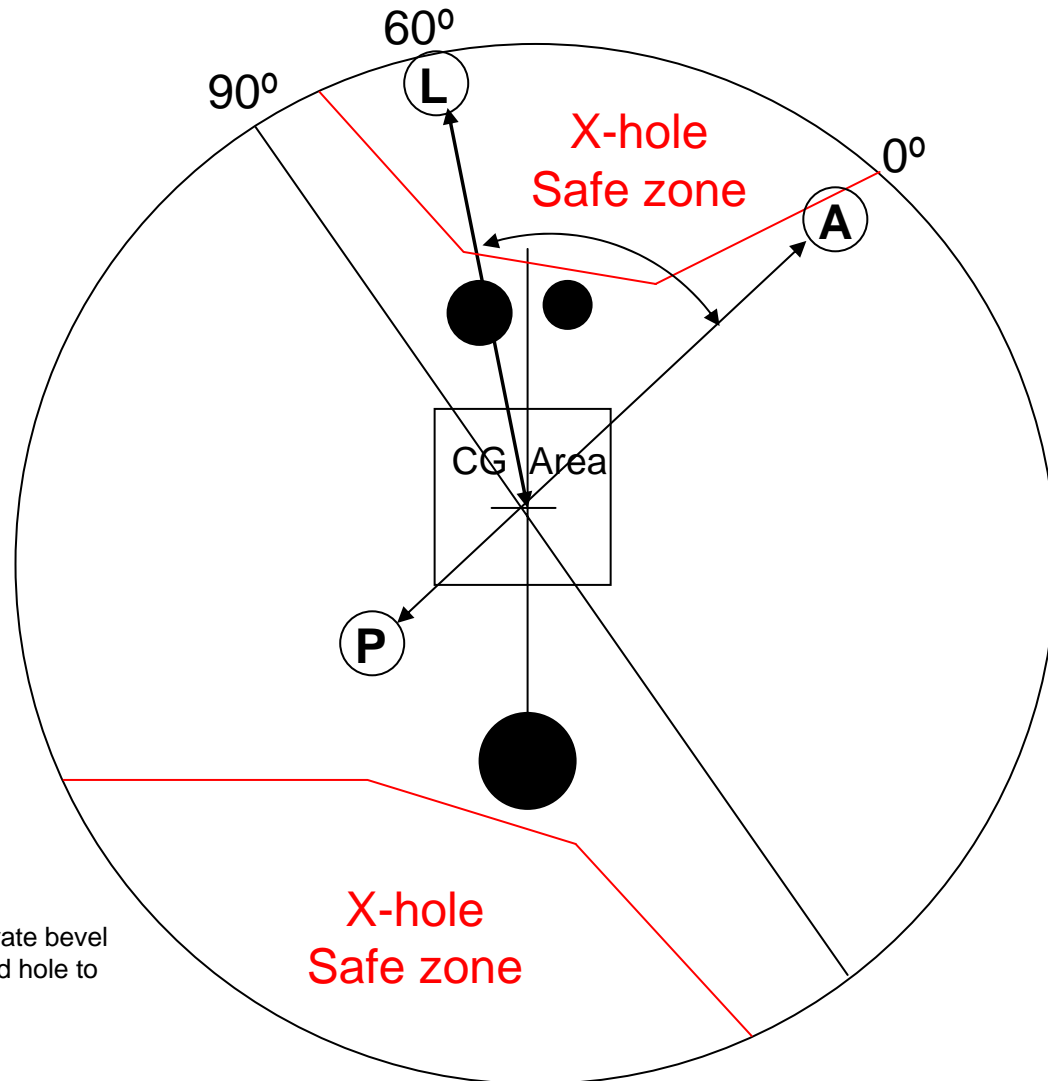
# Length & Back-End – Full Roller

## Asymmetric Core

RG diff - 0.040 or greater

Asy RG diff - 0.015 - 0.030

- Best pin out distance to use: 0 - 3 inches
- Pin from grip center : 2 inches
- Locator Pin set at 60°
- This layout helps bowlers create length with a strong back-end.



- Note: If an X-hole is needed place it in the X-hole safe zone 6" from center of grip to avoid contact with the track.
  1. (P) is the larger circle or pin on the ball that marks the top of the core.
  2. (L) is a smaller circle or pin that marks the Preferential Spin Axis (PSA) of the ball.
  3. For left-handed bowlers use the mirror images of these layouts.
- Note: Finger, thumb and X-holes must have at least a moderate bevel and the riser Pin (P) must be at least one inch from any drilled hole to comply with the Brunswick warranty.

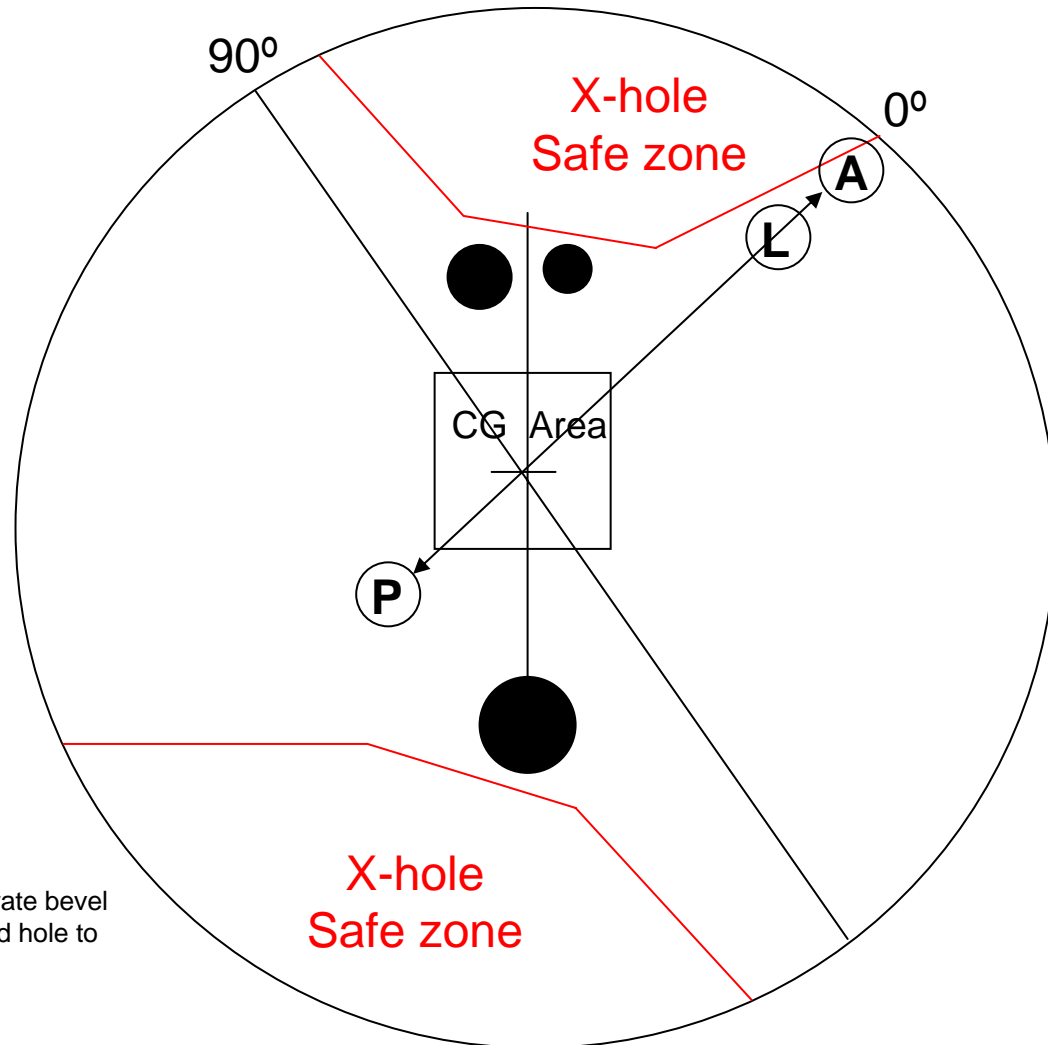
# Length – Full Roller

## Asymmetric Core

RG diff - 0.040 or greater

Asy RG diff - 0.015 - 0.030

- Best pin out distance to use: 0 - 3 inches
- Pin from grip center : 2 inches
- Locator Pin set at 0°
- Length drilling with arcing back-end.



- Note: If an X-hole is needed place it in the X-hole safe zone 6" from center of grip to avoid contact with the track.
  1. (P) is the larger circle or pin on the ball that marks the top of the core.
  2. (L) is a smaller circle or pin that marks the Preferential Spin Axis (PSA) of the ball.
  3. For left-handed bowlers use the mirror images of these layouts.
- Note: Finger, thumb and X-holes must have at least a moderate bevel and the riser Pin (P) must be at least one inch from any drilled hole to comply with the Brunswick warranty.

# Over Flaring - RG Differential - RPM Rates

To prevent “Over Flaring” (early hook with weak back-end reaction), Brunswick recommends the combinations of RGdiff. & RPM rates listed below as the strongest layout to be used.

Lower track players should stay to the smaller end of each range to avoid “Under Flaring”.

<u>RG Diff</u>	<u>RPM rate</u>	<u>Strong drilling</u>
.035 & below	All rates	Leverage – 3 3/8
.036 - .044	Less than 300	Leverage – 3 3/8
.036 - .044	Greater than 300	4 – 4 ½ from PAP
.045 - .050	Less than 300	4 – 4 ½ from PAP
.045 - .050	Greater than 300	4 ½ - 5 from PAP
.050 - .060	Less than 300	4 ½ - 5 from PAP
.050 - .060	Greater than 300	5 – 5 ½ from PAP