

## Purple ProActive Monster

### Specifications

#### Coverstock

Proactive ETX – 4

Color: Purple

Hardness: 77-79

#### Factory Finish

10-Micron Trizact

#### Core Dynamics

RG Max: 2.601

RG Min: 2.551

RG Diff.: 0.050

Average RG: 5.1

#### Performance

Hook Potential: 150

Length: 25

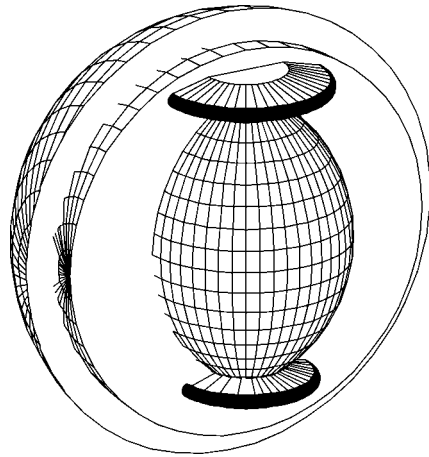
Breakpoint Shape: 30

#### Available Weights

10-16 Pounds

# MONSTER

IT'S IN YOU.



### Reaction Characteristics

Monster introduces Brunswick's most aggressive Proactive coverstock to the popular mid priced category. As a result, the difference in ball reaction between the Monster and other mid-price or entry level balls is significant. Other particle balls at the mid-price point are subtly different from mid-price reactives. In fact, in the hands of mid-skill level players the differences are going to be close to zero. Not so with the Monster. Monster will significantly out-hook and roll more evenly than Reactive coverstock balls, providing a valuable tool to attack oily lane conditions and bridge the gap between introductory and high performance products.

### Surface Finish

The Monster is surfaced to a 10 micron Trizact finish to produce a semi-smooth surface and greater length out of the box than 35 micron ETX - 4 proactives. To create a more aggressive surface for oily conditions, finish the Monster with 35 micron Trizact. If more length is desired, finish the Monster with 5 micron and white Cerium Oxide Trizact. This process will create greater length through the heads while helping maintaining back end reaction as the heads dry out.

### Drilling Information

Monster unveils a new symmetric core shape to the Brunswick family of products. The core is a medium - high RG configuration with a similar medium - high RG differential (.050). The combination of these influences enhance the traction effects of the Proactive coverstock and produce an early rolling mid priced option for medium to oily lane conditions. See Brunswick's "Seven Popular Layouts" for detailed drilling information.

# High-Differential Symmetric Core Bowling Balls (12-16 pounds)

Brunswick's ball drilling instructions include eight layouts; one group of four **earlier rolling reactions** (1E-4E), and one group of four **later rolling reactions** (1L-4L). Both groups contain layouts that adjust performance from **high flare and hook potential** to **low flare and hook potential**. Not every layout is appropriate for all types of releases. Brunswick separates bowler's release characteristics by RPM rate and Track position.

- **High-RPM players** and **Medium-Low RPM players**. High RPM players rev the ball at rates greater than 300 RPM. On the men's tour, rev rates range from approximately 250-450 RPM. Most of the men's tour players you see on TV would be considered High RPM players. High RPM players can be sensitive to "over-flaring" which can make the ball hook early and be inconsistent at the breakpoint. Brunswick recommends low to medium flare layouts for High-RPM rate players
- **High-Track players** and **Medium-Low Track players**. High Track players have tracks within 1" of the thumb and finger holes and will usually have a horizontal axis measurement near 6" from grip center. Medium-Low track players have tracks that are greater than 1" from the thumb and finger holes and typically have horizontal axis measurements that are from 3 1/2" – 5".

After determining your bowler type and ball reaction needs, see the table below for recommended layouts. The Symmetric Core Layout sheet is divided into two columns for "**Earlier Rolling**" and "**Later Rolling**" Reactions.

- **Earlier Rolling Reactions** match up best to oilier and wet/dry lane conditions, or for players who have problems with the ball going too long before changing direction. These will typically be players who have high ball speeds and/or medium-low RPM rates
- **Later Rolling Reactions** match up best to shorter patterns and drier lane conditions, or for players who have problems with the ball hooking or changing direction too early. These will typically be players who have medium-slow ball speeds and/or high RPM rates.

<u>Track</u>	<u>RPM rate</u>	<u>Earlier Rolling Layouts</u>	<u>Later Rolling Layouts</u>
High	High	3E	2L,3L,4L
High	Medium-Low	No early rolling reactions	1L,2L,3L,4L,
Medium-Low	High	2E,3E,4E	2L,3L,4L
Medium-Low	Medium-Low	1E,2E,4E	1L,2L,3L,4L

Brunswick recommends positioning the Heavy-Spot / CG to end up with 3/4 -1oz. of positive side weight and a small amount of finger/thumb weight (less than 1/4 oz.) after drilling. This leaves the driller plenty of room to modify the ball reaction with an X-hole, yet doesn't require that an X-hole be used to make the ball ABC legal.

## Fine Tuning Ball Reactions with an X-Hole

**X-Holes** can be used to **increase** or **decrease** track flare.

- **Increasing track flare** in an existing ball will tend to make the ball more aggressive, hook more, hook earlier and react stronger to the dry areas of the lane.
- **Decreasing track flare** in an existing ball will tend to make the ball less aggressive, go longer, hook less and react smoother to the dry areas of the lane (less over reaction).

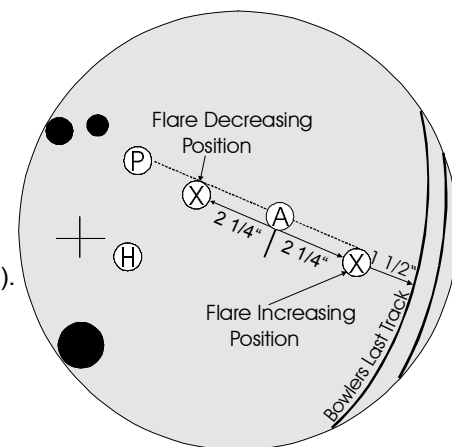
Brunswick is recommending a simplified **one-hole size / two-hole position** technique that covers the vast majority of ball reaction changes that can be accomplished by drilling an X-hole.

- Use a **1" drill bit, 3" deep**, to both increase or decrease track flare.

**Note:** Larger and deeper X-holes result in only slightly greater increases or decreases in track flare. The one-hole size technique has the added advantage of avoiding problems with illegal static weights. As long as the ball was originally laid out with at least 3/4 oz. of positive side weight and a small amount of finger/thumb weight, the 1" X 3" hole using either of Brunswick's recommended X-hole positions will keep you out of static weight trouble.

Brunswick recommends using a position 2 1/4" **past** the bowlers axis to increase flare, and using a position 2 1/4" **back toward the pin** to decrease flare. Using the line connecting the bowlers "axis" and the "pin" as a reference line (see diagram). The X-holes should be on or slightly below the reference line (holes on the line will sometimes drop the narrow point of the track and cause the track to flare over the finger holes).

**Warning:** Drilling a "flare increasing" hole can result in the track flaring over the X-hole. After checking the position of the bowlers last track, make sure the "flare increasing hole" is at least 1 1/2" from the bowlers last track (see diagram above). If necessary shorten the distance from axis in order to keep the "flare increasing hole" at least 1 1/2" from the bowlers last track.



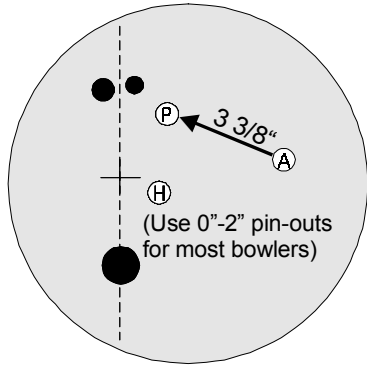
## High-Differential Symmetric Core Layout Sheet

(RGdiff. 0.040 and above )

### Earlier Rolling Reactions

### High Flare High Hook Potential

### Later Rolling Reactions



#### 1E (Heavy Oil)

Maximum hook potential for **Medium-Low RPM** players.

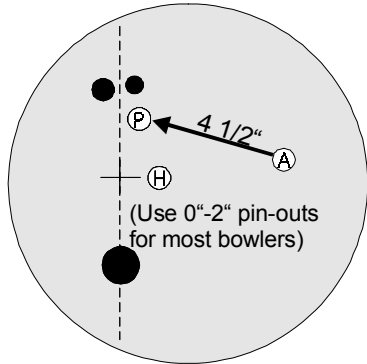
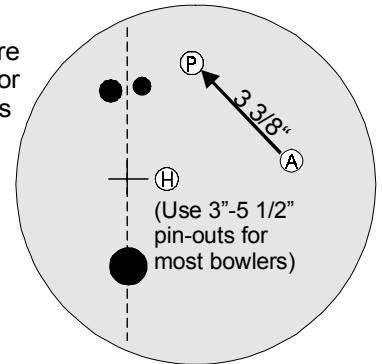
This layout may hook early and be inconsistent at the breakpoint for **High-RPM** players, use layout #2E instead.

This layout may hit the finger holes for **High-Track** players, use layout #1L instead.

#### 1L (Heavy Oil)

Maximum hook potential with less mid-lane and more backend than layout #1E for **Medium-Low RPM** players

This layout may hook early and be inconsistent at the breakpoint for **High-RPM** players, use layout #2L instead.



#### 2E (Medium Oil)

Maximum hook potential for **High-RPM** players

Medium hook potential for **Medium-Low RPM** players

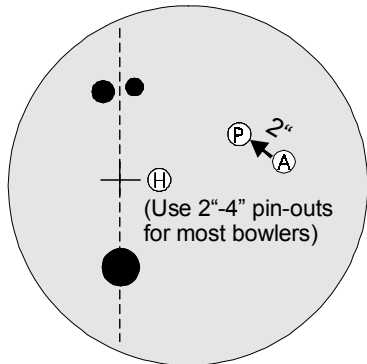
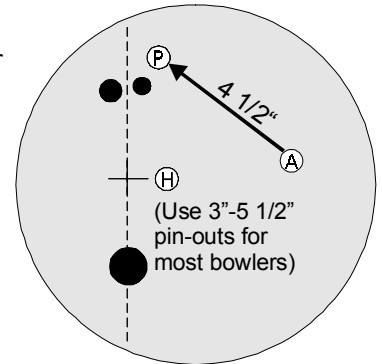
This layout may hit the finger holes for **High-Track** players, use layout #2L instead.

#### 2L (Medium Oil)

Maximum hook potential for **High-RPM** players.

Medium hook potential for **Medium-Low RPM** players

Less mid-lane and more backend than layout #2E.



#### 3E (Oily Wet/Dry's)

Pin between axis and leverage for medium hook potential and early roll.

Helps moderate over reactions.

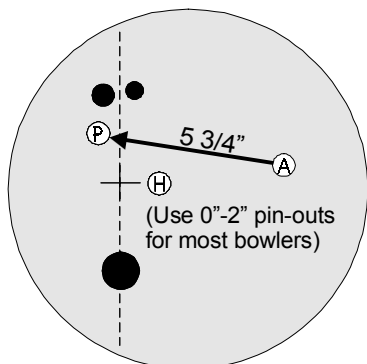
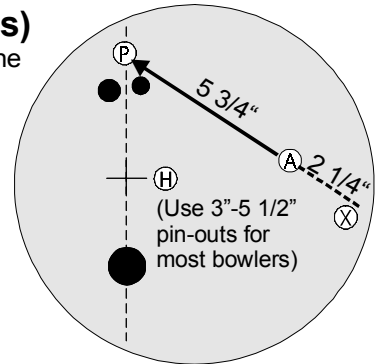
This layout may lack hitting power for **Medium-Low RPM** players.

#### 3L (Hooking heads)

High RG pin position with the pin above the fingers for length. X-hole positioned for increased flare.

Moderate hook potential with skid/snap arc to fight early hook in the heads.

Lower hook potential than layout #2L.



#### 4E (Hooking Wet/Dry's)

Smooth reaction for moderating wet/dry lane conditions

Lower hook potential than layout #3E.

This layout may hit the finger holes for **High-Track** players, use layout #4L instead.

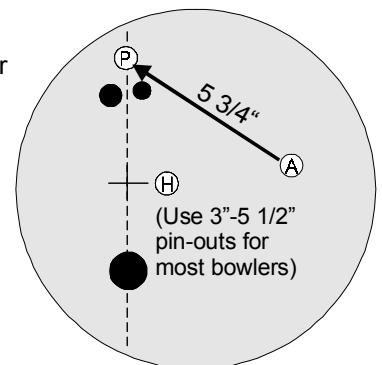
#### 4L (Dry lanes)

Minimum hook potential for dry lanes and moderating over reactions.

High RG pin position with the pin above the fingers for length

### Low Flare

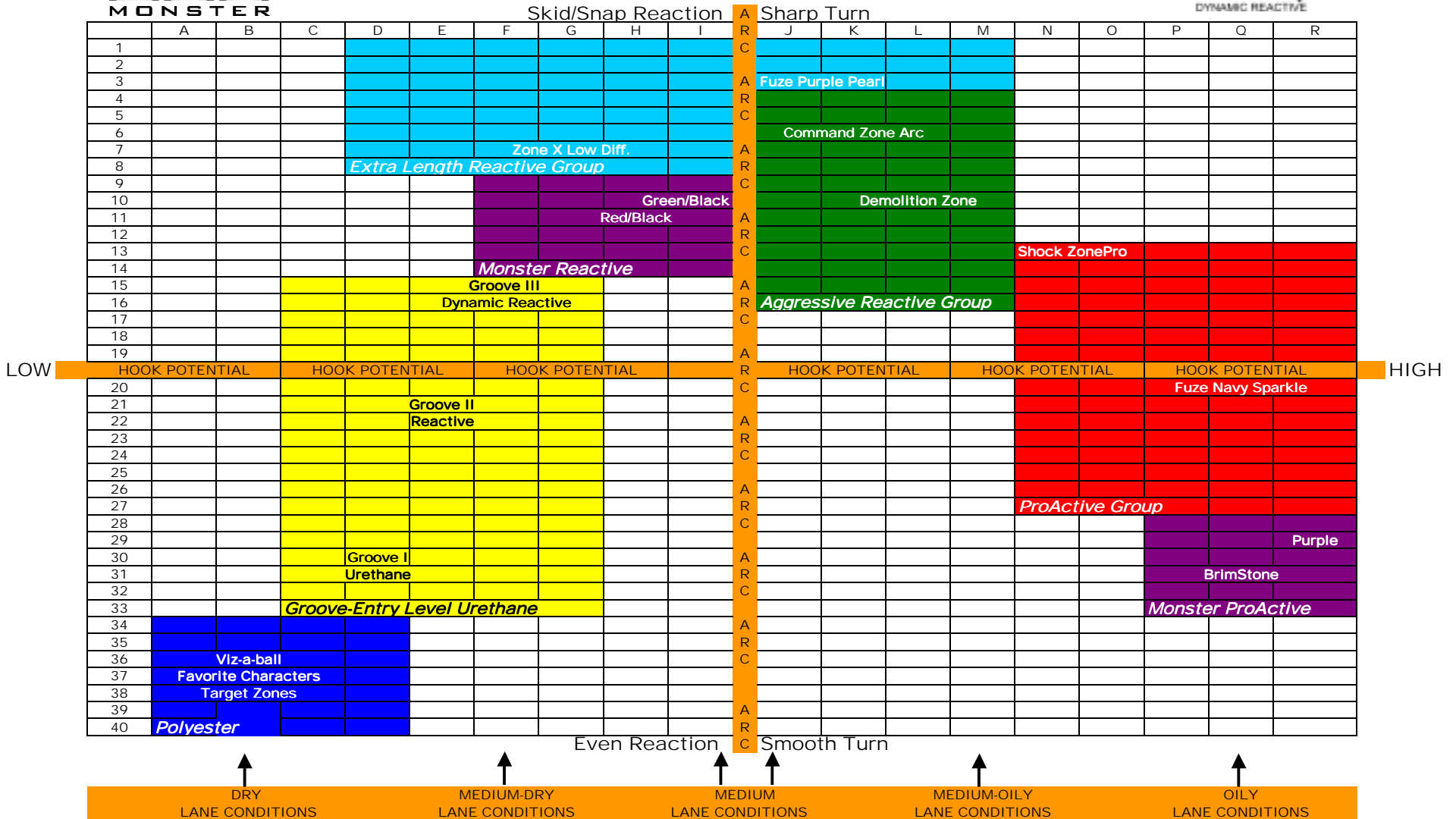
### Low Hook Potential



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



# Brunswick® Ball Comparison Chart



**What's the best ball for your Lane Condition?**

## Brunswick Ball Comparison Chart

The Brunswick Ball Comparison Chart is designed to give the ProShops and Bowlers “**At a Glance**” information about the performance of Brunswick bowling balls.

All balls on the chart have been evaluated using a “Label Leverage” layout (pin 3 3/8” from axis, right of the ring finger. Heavy spot positioned for 3/4 side weight, no X-hole) and with both shiny and dull surface preparations even though *Brunswick ships balls with a variety of surface finishes*. We have found that ProShops/bowlers prefer that a ball be received with a surface preparation that is appropriate for the intended application i.e. Dull for oilier lanes, shiny for drier lanes. The comparison chart indicates the true performance differences between balls. Brunswick is not going to play the game where a manufacture might say that one ball out hooks another, when the only significant difference between the balls is surface finish.

The Brunswick Ball Reaction Chart describes the reactions of Brunswick balls relative to each other in terms of **Hook Potential** and **Arc**.

**Hook Potential:** The horizontal Hook Potential axis describes the hook potential differences for Brunswick balls given the same surface preparation and layout. On the left side of the chart you will find the lower Hook Potential Polyester balls. On the right side of the chart you will find the higher Hook Potential ProActive balls.

Another way to think of the Hook Potential axis would be “Traction”. Brunswick defines Traction as the ability to grip the lane in the presence of oil. The difference in the maximum, dry lane, Coefficient of Friction of various bowling balls is not large, but the ability of different coverstock materials to traction in the presence of oil is significant. The balls to the right side of the chart are able to traction through heavier amounts of oil than the balls in the middle or left side of the chart.

**Arc:** The vertical Arc axis describes typical Arc shapes for Brunswick balls when drilled with the same surface preparation and layout, and when used on lane conditions that are appropriate for each ball. As a bowler’s skill level improves, “*where the ball hooks*” can be as important as “*how much the ball hooks*”. On the bottom of the chart you will find the even arcing ProActive and Polyester balls. Even arcing balls will tend to change direction sooner and have a more even or gradual arc. Toward the top of the chart are the more skid/snap Reactive coverstock balls. Skid/Snap balls will tend to change direction later, stay on a straight-line path longer, and then make a sharper turn toward the pins.

Another way to think of the Arc axis would be “Reaction off the Dry”, the balls at the bottom of the chart are smoother off the dry and more even arcing, the balls at the top of the chart are stronger off the dry and more skid/snap in character.

The **Brunswick Ball Comparison Reaction Chart** is intended to convey the relative performance of Brunswick High Performance balls. So if we are looking at a ball in the F-15 position compared to the ball in the I-10 position the important thing is that the F-15 is more even, with a lower hook potential, and the I-10 is more skid/snap with a higher hook potential.

What’s not overly important is that a ball is an F-15 or I-10, or any other absolute position on chart. It’s how the two balls are positioned relative to each other that matters most. The positions on the chart represent the knowledge gained through the development process, ThrowBot and human testing and use on the professional tours. As time goes by we may change a ball to a slightly different position based on our experience, or shift the entire chart to accommodate a ball with a new performance characteristic.

## ***Walking through the Chart***

Starting at the lower-left are the balls with the lowest Hook Potentials and most even Arcs. This part of the chart includes Polyester coverstocks and low flare core systems. Traction in oil and reaction off the dry is at a minimum.

Moving up and to the right the reactions are becoming higher in Hook Potential and more skid/snap in Arc. This part of the chart includes Urethane and Reactive coverstocks and low to medium flare core systems. Traction in the oil and reaction off the dry are increasing.

At the top of the chart we have moderate Hook Potentials combined with most skip/snap arcs. This part of the chart includes stronger Reactive coverstocks and medium to high flare core systems. Traction in the oil is moderate, but the reaction off the dry is at it's maximum.

From the top of the chart we move down and to the right. The reactions are becoming higher in Hook Potential but more even in arc. This part of the chart includes aggressive Reactive and light load ProActive coverstocks and high flare core systems. Traction in the oil continues to increase, but now the reaction off the dry is decreasing.

Moving to the bottom-right we have the highest Hook Potentials combined with more even Arcs. This part of the chart includes higher load ProActive coverstocks and high flare core systems. Traction in the oil is at its maximum with moderate reaction off the dry.

## ***Color Coded Blocks***

The Ball Comparison Chart is divided into color blocks that designate the performance ranges of Brunswick's ball brands and performance groups.

**Brunswick High Performance** includes ***Fuze*** and ***Zone*** brand balls and is divided into three categories:

**Proactive Group:** Big hook potentials and even arcs for all types of bowlers on oily lane conditions.

**Aggressive Reactive Group:** Aggressive Reactive reactions for most bowlers on typical house lane conditions.

**Extra Length Reactive Group:** Cleaner front-ends and more continuous breakpoints for taming hooking heads and over reaction on medium-oily to medium-dry lane conditions.

**Other Brunswick brands include:** Monster Mid-Price, Groove Entry-Level Urethane, Target Zone, Kids Favorite Characters and Viz-A-Ball polyester.

**Monster Mid-Price:** Close to the best for less. More bang for the buck. The Bowling Industries widest range of Proactive and Reactive reactions at the mid-price point.

**Groove Entry-Level Urethane:** Plastic slips, Groove grips. Ready to start hooking the ball? Move up from plastic to Reactive and Urethane coverstock technology. Get in the Groove!

**Target Zone, Kids Favorite Characters and Vis-A-Ball:** Awesome designs, patterns and colors. Minnie, Mickey, Snoopy and more

## Brunswick Ball Comparison Chart Archives

Included are the chart positions of recently discontinued balls. When balls are discontinued they will be moved onto this list. Note: If the balls on the current chart have to be shifted to accommodate a new ball reaction the balls on the archive list will be shifted to maintain the proper relationship with the current chart, so it is possible that the listed positions could change in the future.

<u>BALL</u>	<u>CHART POSITION</u>	<u>BALL</u>	<u>CHART POSITION</u>
Walter Ray Williams MVP	H14	Danger Zone Millennium	K13
Impact Zone	L10	Red Alert	L14
LT-48	N14	Riot Zone Pro	N16
ZonePro Deep Violet	Q22	Contact Zone Pro	N19
ZonePro Teal	S30	HPD	O18
ZonePro Azure	S31	HPC	P22
Attack Zone Urethane	D30	HPH	Q25
Attack Zone Reactive	E20		
Attack Zone MR	F15		
Zone X High Diff.	I5		
Command Zone	J4		
Battle Zone Missile	I12		
Battle Zone Bullet	H11		
Battle Zone Cannon	G11		
Parker Bohn III MVP	I13		
Mike Aulby MVP	K12		

For the most up to date Product Line Information go to [www.brunswickbowling.com](http://www.brunswickbowling.com)