STORM

PIN BUFFER LAYOUT SYSTEM

DRILLING INSTRUCTIONS

1

PIN-TO-PAP ARC

Draw an arc 4″ from the center of the Pin

4"

2

PSA-TO-PAP ARC

Draw a second arc 4″ from the center of the Preferred Spin Axis (PSA) that intersects the first arc from step 1.

Where these arcs intersect is your bowler's Positive Axis Point (PAP).

4" **PAP**

3

PIN TO CENTER OF GRIP ARC

Now that you have found the PAP location, you need to find the Pin Buffer. In this example, use a 2″ Pin Buffer.
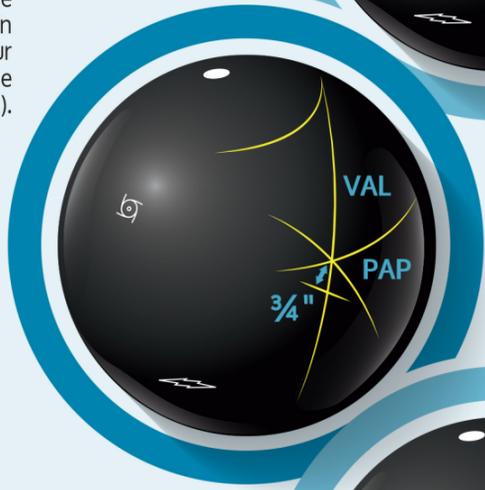
Draw a second arc 2″ from the Pin.

2"

4

VERTICAL AXIS LINE

Draw a line through the point where the arcs from steps 1 and 2 intersect (PAP). This line should be tangent* to the Pin Buffer. This line is your bowler's Vertical Axis Line (VAL).

* Tangent: line which only touches the Pin Buffer in one location.

TANGENT **VAL** **PAP**

5

VERTICAL PAP ARC

Using the VAL from step 4, measure your bowler's PAP backwards.

This example uses a PAP measured as 5"over x ¾" up. Measure ¾" down from PAP on the VAL and make a tick mark.

VAL **PAP** **¾"**

6

DRAWING THE MIDLINE

Use your bowler's span measurements to draw a line perpendicular to the VAL. This is the midline. Using the PAP, measure 5″ backward on the midline and make a second tick mark.

This mark will become the center of grip.

MIDLINE **VAL** **PAP** **5"**

7

DRAWING THE CENTERLINE

Using the tick mark from step 6, draw a line perpendicular to the midline. This line is the centerline.

If the Pin will be within 1″ of the nearest hole, it is necessary to shift the center of grip to either drill the Pin out or increase the distance beyond 1″ in order to meet the manufacturer's warranty requirements.

CENTERLINE **PAP** **MIDLINE** **CENTER OF GRIP**

8

DRILLING THE FINGERS

Now that you have found the centerline and midline, use your bowler's measurements for the final drilling.

FINISHED BALL

4"× 4"× 2"

4″ Pin to PAP x 4″ PSA to PAP x 2″ Pin Buffer to VAL

Pin Buffer Layout System for a 1–Handed player with a PAP of 5″→ and 1″↓ using the center of the bridge as the point of reference.

LEGEND:

Pin   Center of Gravity (CG)   Preferred Spin Axis (PSA)   Positive Axis Point (PAP)