



## Drilling Instructions

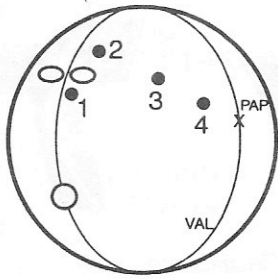
***PHENOM - Any sufficiently advanced technology is indistinguishable from magic.***

***-Arthur C. Clarke***

***Technology and the Future***

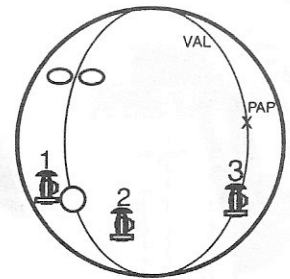
To be a Phenom you must be able to do something at a much higher level than your competitors. What does our newest High performance ball the Phenom do better than others? It balances power and controllability. The Phenom uses the new Morpheus 2.0 core technology coupled with a new particle coverstock called Fang. With the addition of a bottom and top flip block the Morpheus 2.0 core allows for more significant changes in reaction shape than the original Morpheus core. This can be achieved by changing both the density of the core components and the shape of the core itself. The Fang particle is larger which requires a lighter loading to achieve the desired friction.

- Morpheus 2.0 generates more power without sacrificing controllability.
- This quick revving core design creates the defined breakpoint necessary for increased entry angle and pin carry.
- Phenom's reaction shape can be altered significantly with different drillings
- The Fang particle cover can be adjusted with little effort to control both length and backend strength
- Each ball is dynamically spun to ensure accurate mass bias placement.



# High Track

PAP 5 1/4 or more

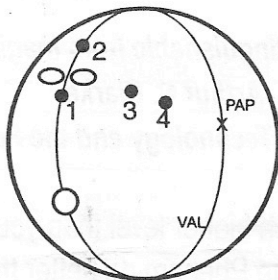


## Pin Positions

- 1) Pin 4 1/2" to 5 1/4" from PAP (Pin below fingers).
- 2) Pin 4 1/2" to 5 1/4" from PAP (Pin above fingers).
- 3) Pin 3" to 4" from PAP.
- 4) Pin 1 1/4" to 2 1/2" from PAP

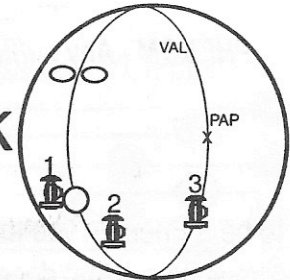
## Mass Bias Placement

- 1) Near Track (6" to 7" from PAP).
- 2) Right of thumb (5" to 6" from PAP).
- 3) Near or past vertical axis line.



# Medium Track

PAP 4 3/8" to 5 1/4"

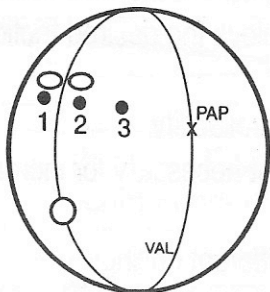


## Pin Positions

- 1) Pin 4 1/2" to 5 1/4" from PAP (Pin below fingers).
- 2) Pin 4 1/2" to 5 1/4" from PAP (Pin above fingers).
- 3) Pin 3" to 4" from PAP.
- 4) Pin 1 1/4" to 2 1/2" from PAP

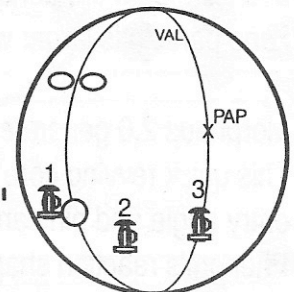
## Mass Bias Placement

- 1) Near Track (6" to 7" from PAP).
- 2) Right of thumb (5" to 6" from PAP).
- 3) Near or past vertical axis line.



# Low Track

PAP less than 4 3/8"



## Pin Positions

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- 2) Pin 4 1/2" to 5 1/4" from PAP.
- 3) Pin 3" to 4" from PAP.
- 4) Pin 1 1/4" to 2 1/2" from PAP

## Mass Bias Placement

- 1) Near Track (6" to 7" from PAP).
- 2) Right of thumb (5" to 6" from PAP).
- 3) Near or past vertical axis line.

### How to use Drilling Instructions.

1. Select pin position to determine the amount of flare and hook needed.
2. Select Mass Bias placement to determine the desired reaction shape (I.E. Arc, Flip, or Forward roll).
3. Use balance hole placement to fine tune total flare and length.
4. Adjust surface to control overall hook.

#### Pin position 1

(Pin approximately 5" from positive axis point below fingers) Pin position 1 produces medium length and flare. Pin placements below finger hole level will effectively shorten core height creating stronger mid lane roll. **Recommended lane condition: Medium to Heavy.**

#### Pin Position 2

(Pin approximately 5" from PAP with pin located above fingers) Pin position 2 maintains the same flare characteristics of pin position 1 creating medium length, but with delayed roll and stronger backend reaction. Pin placements above finger level remove mass from the side of the Morpheus core making it taller which increases the differential. **Recommended lane condition: Medium.**

#### Pin Position 3

(Pin 3" to 4" from PAP) 3" for High speed players and 4" for low speed players. Pin position 3 maximizes track flare which produces the earliest breakpoint possible. The increased track flare of pin position 3 causes the ball to lose speed sooner. **Recommended lane condition: Heavy Oil.**

#### Pin Position 4

(pin 1 1/4" to 2 1/2" from PAP) Pin position 4 places the Morpheus core in a much more stable position. This produces the most length and least amount of track flare of all recommended drillings. **Recommended lane condition: Light oil.**

#### Mass Bias placements

Due to the Morpheus core design mass bias placements are much more influential on the Phenom ball reaction than on standard symmetrical cores. Mass bias placement will determine the reaction shape (i.e. smooth arc vs angular).

#### Mass Bias Placement 1

- MB 6" to 7" from PAP (near track side of thumb) MB placement 1 delays roll and creates a smooth and continuous arcing motion on the backend. This placement is great for forward roll, and/or low ball speed players.

#### Mass Bias Placement 2

- MB 5" to 6" from PAP (approx 1" right of thumb for RH players) MB placement 2 produces an angular breakpoint. Low rev and forward roll players will find this placement very versatile. Caution: MB placement 2 can be too sensitive to friction for players with high rev-rates and/or higher degrees of axis rotation.

#### Mass Bias Placement 3

- MB near or beyond VAL. MB placement 3 loses axis rotation sooner, creating heavy forward roll and mid-lane reaction. Low track and high speed players will find this placement very useful.

#### Attention:

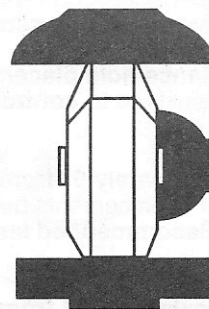
Due to the strong dynamic nature of the Morpheus core design, the Phenom retains a significant amount of Track flare when the pin is placed further from the Positive Axis Point (4-6 inches). In order to reduce flare and increase length on the Phenom, pin placements must be closer to the bowler's positive axis point to stabilize core.

#### Balance Hole Placements:

Balance holes can be placed from 0 to 2" inches down from the PAP on the vertical axis line to influence the loss of axis rotation (roll). Holes further from the PAP on the VAL will create shorter transition from skid to hook.

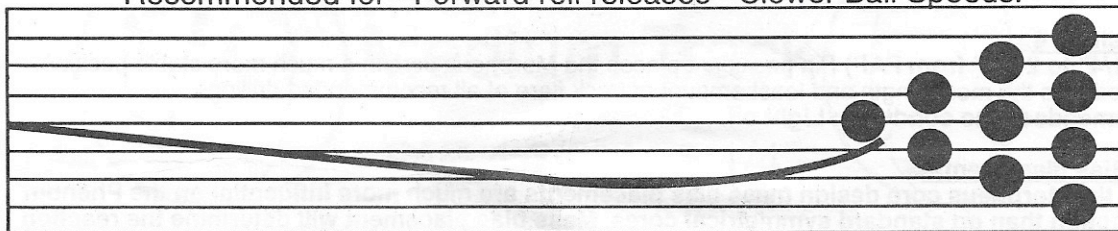
PHENOM SPECIFICATIONS

HOOK RATING (DULL-POLISHED):	38 - 30
LENGTH (1-10):	3
BACKEND (1-10):	9
CORE TECHNOLOGY:	MORPHEUS 2.0
CORE POWER RATING (1-10):	9
RADIUS OF GYRATION:	2.54
DIFFERENTIAL:	.052
INTERMEDIATE DIFFERENTIAL:	.015
DETERMINATOR SPIN TIME:	6.1 SECONDS
FLARE POTENTIAL (INCHES):	7
COVERSTOCK:	FANG PARTICLE
FRICTION RATING (1-10):	9.8
FACTORY FINISH:	1500 SMOOTH
RECOMMENDED POLISH:	MAGIC SHINE / CLEAN N DULL
RECOMMENDED SHAPE:	STRONG ARC
LANE CONDITION:	HEAVY OIL



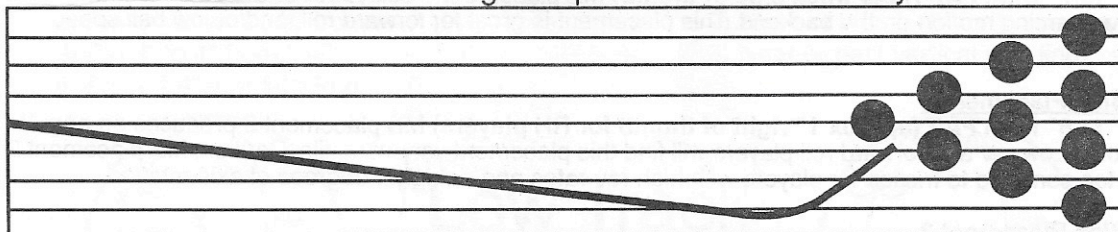
### ARC MB Placement 1

Recommended for - Forward roll releases - Slower Ball Speeds.



### Flip MB Placement 2

Recommended for - Light oil patterns - Low Rev Players.



### Forward Roll MB Placement 3

Recommended for - Higher volumes of oil - Higher Ball Speeds.

