



## DIAGONAL STRINGING INSTRUCTIONS

### QUESTIONS ?

[TENNIS@POWERANGLE.NET](mailto:TENNIS@POWERANGLE.NET) or (914) 340-3780

Diagonal stringing takes 5 minutes to learn and takes the same time to string as conventional.

**POWERANGLE RACKETS, INCLUDING USE OF TWO (2) VIBRATION DAMPENERS INSERTED OUTSIDE THE WOVEN AREA, ARE LEGAL FOR TOURNAMENT PLAY AND CONFORM TO THE OFFICIAL ITF RULES OF TENNIS.**

### STRINGING MACHINE DETAILS TO KNOW:

**A) CLAMPS ON GLIDE BARS OR SWIVEL CLAMPS ?**

**B) AT HOW MANY POINTS IS RACKET MOUNTED TO STRINGING MACHINE ?**

**C) TENSIONING: ELECTRIC (CONSTANT PULL) OR MANUAL (NON-CONSTANT PULL) ?**

**THERE ARE SEPARATE PAGES FOR MACHINES WITH GLIDE BARS AND MACHINES WITH SWIVEL CLAMPS.**

On machines with **GLIDE BARS**: Do not use the 2 clamps that are on the glide bars.

Use 2 PowerAngle Diagonal Floating Clamps that clamp 2 parallel, diagonal strings together.

On machines with **SWIVEL CLAMPS**: You will need to use the 2 swivel clamps plus a start clamp.

On machines that have sharp, rectangular edges on the posts near the racket throat and head (like Babolat stringing machines), put tape or plastic tubes over the posts to protect diagonals from touching the posts.

### SET TENSION

The product development team at PowerAngle determined that diagonal stringing produces a tighter string-bed than conventional stringing. PowerAngle tension range goes from 5 pounds below the maximum tension up to the maximum tension, based on if machine has constant pull or non-constant pull, and mounting style.

**BELOW ARE THE MAXIMUM TENSIONS FOR ALL POWERANGLE RACKET MODELS. CHOOSE TYPE OF POWERANGLE RACKET BEING STRUNG AND MAXIMUM TENSION BASED ON TYPE OF STRINGING MACHINE BEING USED:**

**ELECTRIC (CP - CONSTANT PULL) OR 6-POINT MOUNTING OR 4-POINT MOUNTING OR MANUAL PULL - (NON-CONSTANT PULL) OR 2-POINT MOUNTING, LIKE PRINCE NEOS**

#### POWERANGLE OVERSIZE:

**GRAND, POWER 115, SPIN 115:** (115 sq. in.) use 40 ft. string, one length

**ELECTRIC (CP):** Maximum tension = 53 lb. then lower tension 5 lb. for last 2 diagonals per side

**MANUAL PULL:** Maximum tension = 58 lb.

#### POWERANGLE SUPER-MID

**CENTRIC, POWER102, SPIN102:** (102 sq. in.) use 40 ft. string, one length

**ELECTRIC (CP):** Maximum tension = 54 lb. then lower tension 5 lb. for last 2 diagonals per side

**MANUAL PULL:** Maximum tension = 59 lb.

#### POWERANGLE MIDSIZE

**ACE OF DIAMONDS, PRO, POWER98, POWER98/K:** (98 sq. in.) use 36 ft. string, one length

**ELECTRIC (CP):** Maximum tension = 55 lb. then lower tension 5 lb. for last 2 diagonals per side

**MANUAL PULL:** Maximum tension = 60 lb.

**OVERVIEW:** START AT TOP, ALTERNATE STRINGING 2 DIAGONALS IN EACH DIRECTION. NO SKIPPING HOLES, EXCEPT TO TIE KNOT ON OVERSIZE FRAMES.

**MOUNTING RACKET ON STRINGING MACHINE**

PowerAngle Rackets have black and white numerals around frame to show the path of diagonals. Mount the frame on your stringing machine with the numerals facing up. White numerals show right diagonals (white=right), which slant from the head of the racket down to the right. Black numerals show left diagonals (black=left), which slant from head of racket down to the left. Most shared grommets have two numerals.

**STRING INFORMATION**

PowerAngle recommends using one length of string (40 feet for oversize & super-mid, 36 feet for midsize). Any string can be used, preferably 17 or 18 gauge. PowerAngle sells PowerAngle Duo-Color™ TNT 17 gauge Synthetic Gut, which is half-black and half-white, and changes color at the mid-length. This highest quality synthetic gut is easy to use since white string end goes into white numerals and black end goes through black numerals, creating an attractive pattern of intersecting black and white diagonal strings.

**STARTING**

For all PowerAngle Rackets, start diagonals at the top of the racket head, at location marked “START”

**NUMBER OF DIAGONALS IN EACH DIRECTION**

There are 3 basic patterns that cover all PowerAngle Diagonally-Strung Rackets. The number of diagonals in each direction is stated in the throat area, and in the chart below:

<u>Diagonals</u>	<u>Racket MODEL</u>
19 x 19 Diagonals	PowerAngle GRAND, Power115, Spin115
18 x 18 Diagonals	PowerAngle CENTRIC, Power102, Spin102, Power98, Power98/K
16 x 16 Diagonals	PowerAngle ACE of DIAMONDS, PRO

**CAUTION!** TO PREVENT FRAME FROM CRACKING OR WARPING, ALTERNATE WEAVING AND TENSIONING 2 DIAGONALS IN EACH DIRECTION

**VIBRATION DAMPENERS**



After stringing is complete, we recommend inserting two PowerAngle diamond-shaped vibration dampeners above the 2 diamond icons on the throat of the racket. Turn each dampener 90 degrees to lock it in place.

Vibration dampeners must be inserted outside of the woven area.

**STENCIL**



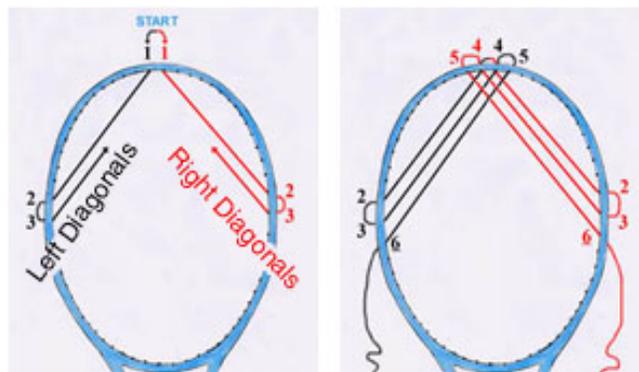
The PowerAngle logo is a large **DIAMOND**. **TO STENCIL the DIAMOND:** Skip the outer two diagonals. Ink the next two inner diagonals all around the racket.

◆ **FOR 2-POINT MOUNTING, MANUAL MACHINES WITH GLIDE BARS: NOW GO TO PAGE 3 (NEXT PAGE)**

◆ **FOR 6-POINT MOUNTING, OR ELECTRIC MACHINES WITH SWIVEL CLAMPS: NOW GO TO PAGE 5**

◇ FOR 2-POINT MOUNTING, MANUAL MACHINES WITH GLIDE BARS:

**IMPORTANT: SET TENSION ACCORDING TO DIRECTIONS ON PAGE 1**



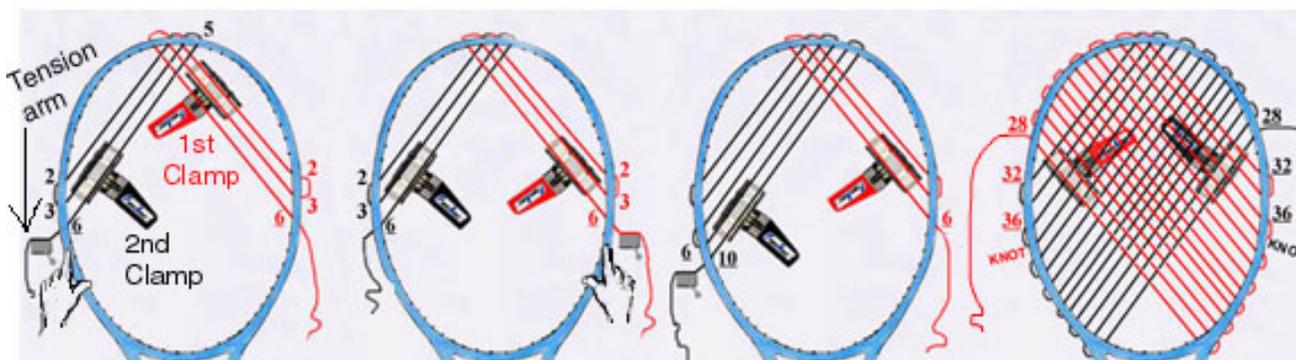
DIAGRAMS: A

B

**STEP 1** - Don't use your machine's glide bar clamps, instead use 2 PowerAngle Diagonal floating clamps that grab and clamp two parallel strings at once.

Referring to **DIAGRAM A**, locate "START" at top of hoop. Insert ends of string through grommets marked black "1" and white "1" (white numbers and white strings are shown in **red** in **DIAGRAMS**).

**STEP 2** - Thread left diagonals through grommet holes marked with black 2, 3, 4, 5, and 6. Then weave right diagonals through grommet holes marked with white 2, 3, 4, 5, and 6, leaving loops to pull tension.



DIAGRAMS: C

D

E

F

**STEP 3** — Referring to **DIAGRAM C**, put **1<sup>st</sup> clamp** (shown in **red**) on 1<sup>st</sup> and 2<sup>nd</sup> right (**red**) diagonals near top of frame. Pull tension on 2<sup>nd</sup> left diagonal, which will also tension 1<sup>st</sup> left diagonal, then attach 2<sup>nd</sup> clamp onto 1<sup>st</sup> and 2<sup>nd</sup> left diagonals, near top of frame. (This interim clamping not shown on **DIAGRAM C**.) Then, as shown by pointed hand in **DIAGRAM C**, tension 3<sup>rd</sup> left diagonal, by moving 2<sup>nd</sup> clamp onto 2<sup>nd</sup> and 3<sup>rd</sup> left diagonals. (In summary, you tension the first two diagonals together, then after that, you will be tensioning each diagonal string individually.)

**STEP 4** — Pull tension on 2<sup>nd</sup> right diagonal, and re-attach 1<sup>st</sup> clamp near top (not shown). Then tension 3<sup>rd</sup> right diagonal, attach clamp near the hole marked white "6" as shown by pointed hand in **DIAGRAM D**. Now, the first 3 diagonals in each direction are complete. Next, continue to alternate weaving just 2 diagonals in each direction, pulling tension on each string, as shown in **DIAGRAMS E** and **F**.

**CAUTION! TO PREVENT FRAME FROM CRACKING OR WARPING  
ALTERNATE WEAVING AND TENSIONING 2 DIAGONALS IN EACH DIRECTION.**

**STEP 5** - Continue stringing until all diagonals are inserted.

The number of diagonals in each direction is stated in the throat area, and in the chart below:

<u>Diagonals</u>	<u>Racket MODEL</u>
19 x 19 Diagonals	PowerAngle GRAND, Power115
18 x 18 Diagonals	PowerAngle CENTRIC, Power102, Power98, Power98/K
16 x 16 Diagonals	PowerAngle ACE of DIAMONDS, PRO

**TIE OFF AT "KNOT" LOCATIONS, MARKED ON FRAME.**

**INSERT TWO (2) VIBRATION DAMPENERS AND STENCIL STRINGS, AS SHOWN BELOW.**

## VIBRATION DAMPENERS



After stringing is complete, we recommend inserting two PowerAngle diamond-shaped vibration dampeners above the 2 diamond icons on the throat of the racket. Turn each dampener 90 degrees to lock it in place.

Vibration dampeners must be inserted outside of woven area.

**POWERANGLE RACKETS, INCLUDING USE OF TWO (2) VIBRATION DAMPENERS INSERTED AS IN THE ABOVE PHOTO, ARE LEGAL FOR TOURNAMENT PLAY AND CONFORM TO THE RULES OF THE INTERNATIONAL TENNIS FEDERATION.**

## STENCIL



The PowerAngle logo is a large **DIAMOND**.

**TO STENCIL the DIAMOND:** Skip the outer two diagonals. Ink the next two inner diagonals all around the racket.



**QUESTIONS ?**

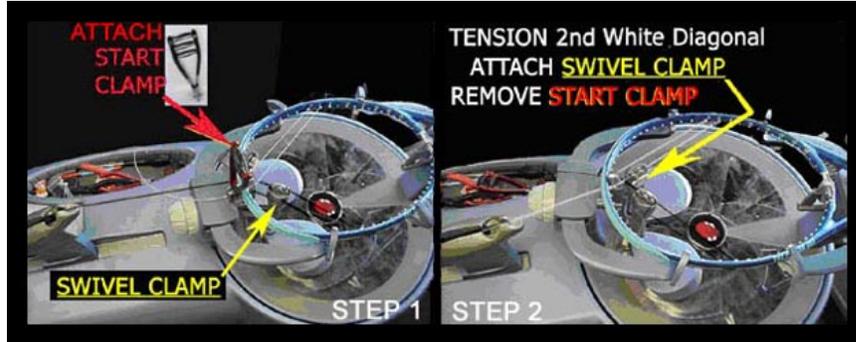
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◆ FOR 6-POINT MOUNTING OR ELECTRIC MACHINES WITH SWIVEL CLAMPS:

YOU WILL NEED: 2 SWIVEL CLAMPS AND 1 START CLAMP

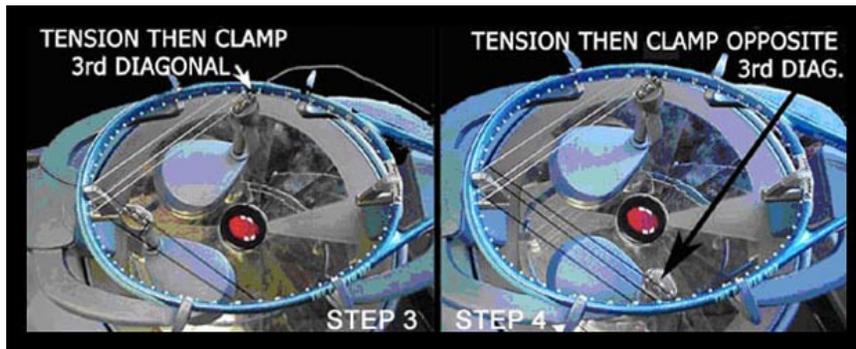
**IMPORTANT: SET TENSION AS EXPLAINED ON PAGE 1**

**CAUTION! LOWER TENSION BY 5 POUNDS BEFORE PULLING LAST 2 DIAGONALS ON EACH SIDE, TO PROTECT FRAME FROM CRACKING AT THE THROAT!**

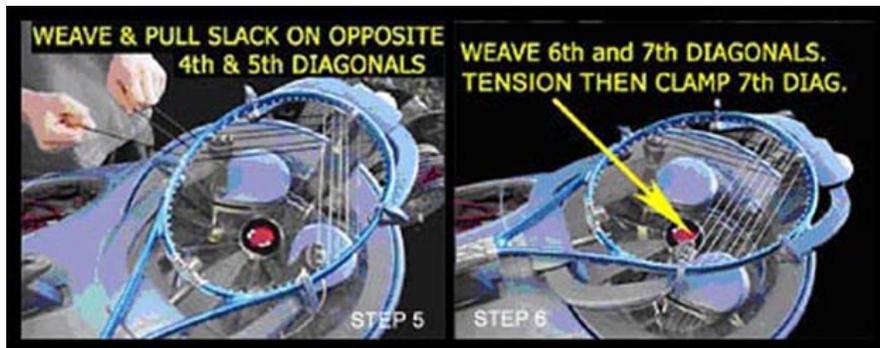


**STEP 1** - Locate "START" at top of hoop. Insert ends of string through grommets marked black "1" and white "1". Continue threading left diagonals through grommet holes marked with black numerals 2, 3, and 4, and weave right diagonals using grommet holes marked with white numerals 2, 3, and 4.

**STEP 2** - Attach start clamp to 2<sup>nd</sup> white (right) diagonal string, outside frame. Then, tension 2<sup>nd</sup> black (left) diagonal and attach a swivel clamp. Next, pull tension on 2<sup>nd</sup> white (right) diagonal, remove the start clamp, and attach other swivel clamp.

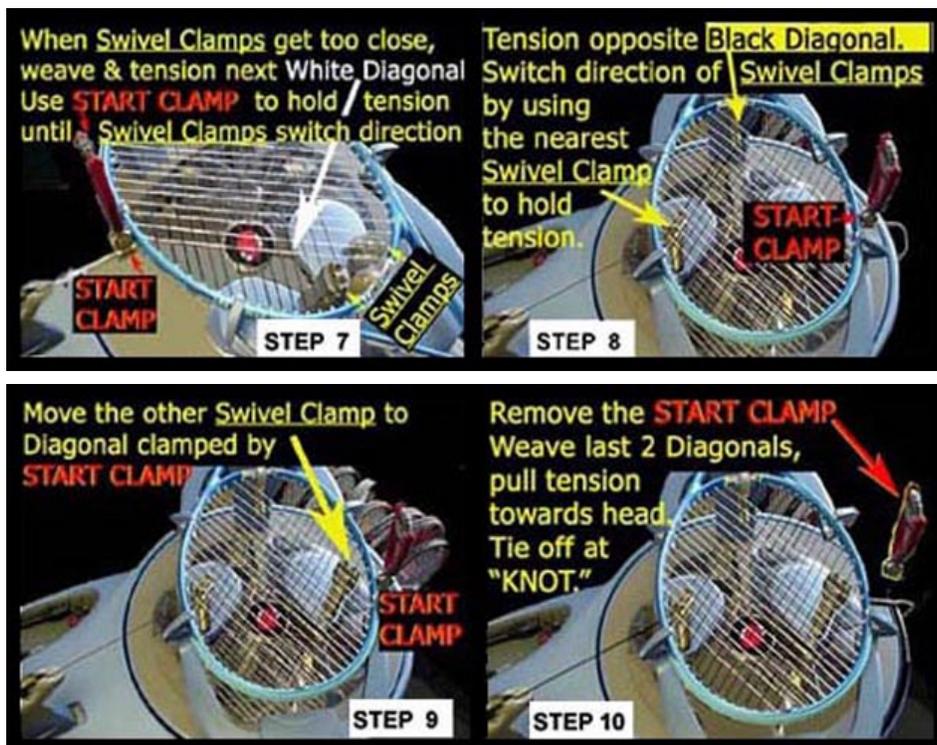


**STEPS 3 & 4** - Weave and then tension the third diagonal on each side. Pull tension toward the throat, and hold tension with swivel clamps at holes marked "6".



**STEPS 5 & 6** - Weave diagonals toward head, then weave toward throat, but if the clamps don't reach, then only pull tension toward the throat, and then clamp.

**CAUTION! TO PREVENT FRAME FROM CRACKING OR WARPING. ALTERNATE WEAVER AND TENSIONING 2 DIAGONALS IN EACH DIRECTION.**



**STEPS 7, 8, 9 & 10** - When swivel clamps get too close together in throat area, pull next diagonal string toward the head. Attach start clamp and/or floating clamp to hold tension until swivel clamps switch direction.

**CAUTION!** ♦ **LOWER TENSION 5 POUNDS BEFORE TENSIONING LAST 2 DIAGONALS ON EACH SIDE, TO PROTECT FRAME FROM CRACKING AT THE THROAT!**  
♦ **ALTERNATE WEAVING AND TENSIONING 2 DIAGONALS IN EACH DIRECTION.**

**STEP 11** - Complete stringing diagonals.

The number of diagonals in each direction is stated in the throat area, and in the chart below:

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**TIE OFF AT "KNOT" LOCATIONS, MARKED ON FRAME.**

**INSERT TWO VIBRATION DAMPENERS AND STENCIL STRINGS, AS SHOWN ON PAGE 4.**



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