

## BOX STYLE FORGING



Box type pistons also have their pin bosses moved inward toward the center of the piston, but include an additional rib to strengthen the deck of the piston and pin bosses. These too allow the use of shorter wristpins which promotes reduced wrist pin deflection. The box structure actually creates a “box” around the small end of the connecting rod. These pistons are not always lighter, but are typically stronger than traditional round style pistons and typical X-Forgings.

## BILLET



A billet is made from a bare aluminum cylinder (extruded bar stock) and is the same material as the forgings. This approach gives us the ability to create any geometry desired and is often used when a forging is not available for a given application, or they can be chosen for prototyping before a new forging design is released. Although we have many forgings, sometimes preference is still a billet, as it is a free-form process ensuring a perfectly matched result every time. We offer several different finishes on our billets and the price is determined accordingly. Depending on what tools can be used, how many edge breaks/rounded corners are preferred and tool step over on the program – all determine spindle time. We are also able to place the center of gravity in “X” and “Y” at the center point of the piston when feasible and create a balanced piston for tighter piston to cylinder head clearances. Shot peening is always an option on a billet and when done, it makes the fully machined underside appear very similar to a piston on a forging.

## COATINGS

### HARD ANODIZE



Anodizing the piston reduces wear and material transfer. Anodizing can be done to the entire piston or a selective area depending on its usage. Anodizing the entire piston has been shown to be very durable in drag racing applications, but some pistons require only the ring groove(s) anodized in order to lessen the chance of micro-welding the ring to the aluminum groove.

### CERAMIC CROWN COATING



This coating reflects heat into the combustion chamber and away from the piston crown, while lowering piston temperatures for increased part life. The engine can experience improved combustion and performance as a result of heat being reflected back into the fuel charge.

### SKIRT COAT / MOLY DRY FILM COATING



The application of molybdenum to the piston skirt, used to reduce friction between the piston and the cylinder during engine operation. It also helps during cold start ups and high temperature operation where a substandard oil barrier on the cylinder wall could exist.

### OIL SHED COATING

Applied to the underside of the piston, this coating reduces the reciprocating mass by repelling oil from internal moving parts.

### WPC TREATMENT



WPC is a treatment that enhances the surface to reduce friction by firing ultra fine particles towards the surface of a piston or wristpin at very high speeds. The thermal discharge permanently changes the surface, strengthening the structure and creating a harder more durable final product. Its unique micro-dimple formation pattern greatly reduces friction and helps retain oil.

### ASF TREATMENT



Besides the obvious shine, ASF (Accelerated Surface Finishing) deburrs and smooths the surface while reducing carbon build up, possibility of stress risers and also aids in shedding oil from the piston underside. There are different approaches that can be taken, either the entire piston can be treated, or just the dome and underside depending on when the process takes place.

**\*\*Consult your CP-Carrillo tech associate before deciding on which feature or coating works best for you\*\***



## Ceramic Micro-Dimpled pins

CP-Carrillo's Micro-Dimpled finish pins offer affordable wear protection. This unique treatment process refines and compacts the pin's surface texture, making it harder and more durable. The improved surface texture allows more consistent lubrication, reducing friction and decreasing chances of wrist pin galling. Available in both our 5100 Chromoly and 9310 pins, these pins are perfect for every budget -and application.

- Strengthened surface structure
- More durable, harder and consistent finish
- Micro-Dimpling holds lubricant better
- 1 Micron surface finish
- Case hardened (computerized gas process)
- Gun drilled I.D.'s
- Weight tolerances +/- 1 gram
- Precision ground ends
- Available with chamfered ends for use with Wire Locks
- Straight wall design to reduce pin bore galling

## Ceramic Micro-Dimpled pins - Chamfered - Chromoly

PART	PART	PART	PART	PART
W551-1500-12CP1C	W708-2000-15CP1C	W827-2250-16CP1C	W905-2250-15CP1C	W927-2500-15CP1C
W591-1650-13CP1C	W748-2000-15CP1C	W827-2500-15CP1C	W927-2000-12CP1C	W927-2750-15CP1C
W630-1650-13CP1C	W787-2000-15CP1C	W866-2250-15CP1C	W927-2250-15CP1C	W928-2750-15CP1C
W669-1650-12CP1C	W812-1875-15CP1C	W866-2500-12CP1C	W927-2250-18CP1C	W945-2500-15CP1C
W708-1850-15CP1C	W827-2000-15CP1C	W866-2500-15CP1C	W927-2500-12CP1C	

## Ceramic Micro-Dimpled pins - Non Chamfered - Chromoly

PART	PART	PART	PART
W927-2500-15CP1S	W927-2750-15CP1S	W929-2750-15CP1S	W990-2750-15CP1S

## Ceramic Micro-Dimpled pins 9310 Steel - Chamfered

PART	PART	PART	PART	PART
W708-2350-18CP3C	W866-2750-15CP3C	W927-2750-15CP3C	W928-2750-15CP3C	W990-2930-22CP3C
W748-2000-12CP3C	W905-2500-15CP3C	W927-2750-17CP3C	W928-2950-17CP3C	W991-2930-15CP3C
W787-2250-14CP3C	W927-2000-11CP3C	W927-2950-15CP3C	W929-2250-15CP3C	W991-2930-18CP3C
W787-2250-16CP3C	W927-2000-15CP3C	W927-2950-17CP3C	W929-2750-15CP3C	W991-2930-20CP3C
W827-2000-12CP3C	W927-2250-13CP3C	W928-2250-13CP3C	W929-2750-17CP3C	W991-2930-22CP3C
W866-2250-15CP3C	W927-2250-15CP3C	W928-2250-15CP3C	W929-2950-17CP3C	W992-2930-15CP3C
W866-2250-17CP3C	W927-2250-17CP3C	W928-2500-13CP3C	W990-2750-18CP3C	W992-2930-18CP3C
W866-2250-18CP3C	W927-2500-13CP3C	W928-2500-15CP3C	W990-2930-18CP3C	W992-2930-22CP3C
W866-2500-20CP3C	W927-2500-15CP3C			

## Ceramic Micro-Dimpled pins 9310 Steel - Non Chamfered

PART	PART	PART	PART	PART
W866-2500-15CP3S	W927-2750-17CP3S	W930-2750-15CP3S	W990-2930-18CP3S	W991-2930-20CP3S
W927-2250-15CP3S	W927-2950-13CP3S	W990-2750-13CP3S	W990-2930-20CP3S	W991-2930-22CP3S
W927-2500-13CP3S	W927-2950-15CP3S	W990-2750-15CP3S	W990-2930-22CP3S	W992-2930-15CP3S
W927-2500-15CP3S	W927-2950-23CP3S	W990-2750-18CP3S	W991-2930-15CP3S	W992-2930-18CP3S
W927-2750-13CP3S	W928-2500-15CP3S	W990-2930-15CP3S	W991-2930-18CP3S	W992-2930-22CP3S
W927-2750-15CP3S	W928-2750-15CP3S			