

# 383 Stroker FAQ

The 383 chevy is one of the most powerful engines you can build. It is also the source of many questions and a lot of confusion. This is a basic 383 information page. The info is specifically about the properties and special conditions they may require in there buildups.

## **What is a 383 and what do I need to build one?**

A 383 is a 350 production block with a 400 production crank. The crank has some special machine work done, namely the main journals of the 400 are 2.65" and the 350's are 2.45" so they must be turned down by .200" to make the STD. 350 main bearing size. Since the 400 is externally balanced you will need a balancer and flywheel/flexplate for a 400 CID chevy motor.

## **Do I need special pistons?**

Yes and no. The added stroke of the engine would push the piston out of the bore by .125" if you used stock 350 pistons and rods. If you run stock 350 pistons and 400 style rods you can get away without special pistons but The skirts may also hit the counterweights since the 400 crank has larger weights and is longer from the centerline outward. If you go this route you need to pay close attention to crank to piston skirt clearance.

## **What's with this rod thing?**

The 400 uses a 5.56" long connecting rod. All other small block chevy's use a 5.7" rod. The reason for the shorter rod is GM decided not to raise the piston pin higher so they shorted the rod the appropriate length to prevent the piston from popping out. 383's can have many different rod lengths but the first ones used stock 400 rods and stock 350 pistons with relieved skirts before custom pistons were available.

## **Which rod is better and why?**

The longer rods are better than shorter ones. For a full explanation see the rod FAQ

## **Will longer rods cost more or require special work?**

Yes and Yes!! The longer rods themselves don't cost more but the pistons you need will raise in price. The pistons will have higher piston pin heights and will have rings higher up on the piston. In cases where a non stock rod of 6.00" or longer the pin will actually intersect with the oil ring. These will require support rails for the ring. The longer rods will also make cam to rod clearance an issue. Special grinding or clearancing of the rod bolt shoulder will be required and/or a reduced base circle camshaft will be required.

## **What will the block require?**

The block will need to be notched in the oil pan area. The longer stroke crank will need deeper notches to clear the counter weights and rod throws.

## **Should I balance the motor?**

Yes!!!! Any time you change geometry from stock a balance job is necessary. That is if you want it to live! The pistons and rods are lighter than stock 400 versions and there is too much counterweight. This will make for a lot of vibrations and that is bad for a motor.

## **What kind of heads do I need?**

Any kind you want. A 383 takes the same cylinder heads as a 350. The 383 does like larger heads and big valves but it is not mandatory to have 2.02/1.60 valves and huge intake runners.

## **Do I need steam holes in these heads?**

No! A 383 uses a 350 block and it has no provisions for steam holes. It also cools like a 350 so only minor cooling system upgrades are necessary.

## **What is the cost of this kind of buildup?**

This is a tricky question and probably the most asked one! A 383 can be very pricey. The crank will cost a pretty penny to find a used one. There are several aftermarket companies selling '383' cranks that don't require any work so said. A crank can cost anywhere from 250 to over 1800\$ depending on the kind and quality of the crank you buy. Pistons also fall into this wildly ranging category. You can spend 150 on cheap cast pistons or over 500 on light forged units. The balance job can cost from 120 to 240 depending on the shop, kind of balance job and the area you live in. Block work is not too bad. The only extra is the notching

and that can be from 100-175 for the work. The rods are also another area of wide variety. You can get stock reworked 400 rods with ARP bolts for 100\$ and you can order the 700\$ sportsman rods and so on. If you order aftermarket rods that are profiled for stroker motors you will save yourself the grinding of the rods and/or the reduced base circle cam. If you get stock rods or non profiled rods you will either have to grind them yourself or pay your shop 50-100\$ for this. You will also need to do this before the motor is balanced!!! I have built them for around 1600 and as much as 10,000 so far so do some leg work and pricing!

#### **How much power will the stock 400 crank handle?**

I have used a prepped 400 crank to 700+HP I have used basically stock cranks to over 550 HP so a stock nodular iron crank is fine for most buildups. The crank is strong because of the beefier construction of the crank.

#### **What is the red line on these motors?**

The red line varies from motor to motor depending on the parts installed and work done etc... A basic short rod 383 will live to 5500 and a 5.7" rod motor will go to 6500. Motors with forged internals and special work done can of course go higher. As a basic rule of thumb you can go 1000 RPM per 10PSI of oil pressure. If you have 70 PSI you can make 6000 with a 10 PSI safety margin. This rule will affect every kind of motor. It's kinda of an either/or here. You can go as high as your oil pressure permits or the internal parts permit whichever is lower!

#### **What size cam will I need?**

Probably the second most asked question is cam sizing. This is another tricky thing to pick. Since every single aspect of the engine and vehicle it's installed in will affect this I will just give another rule of thumb. 99% of rated ranges on products are based on the 350. If you have built a 383 you can add 10 degrees of duration to the motor and get very similar characteristics. For example; A 350 would probably have a moderate to rough idle with a 224 duration cam, measured @ .050 lift. The 383 will take a 234 duration cam to make almost the same idle and vacuum as the 350. These motors also like to breath so longer duration larger lift cams work well in them. **Don't overcam!** Just because you have a bigger engine don't go stuff the largest cam you can find into it. Most street engines use less than 234 degrees of duration @ .050! The motor is bigger so it will make more power with less cam so a 383 with a 214 cam will make more power than a 220 duration cam 350 if all else was the same.

#### **What intake and manifold should I use?**

Intake should be a high rise aluminum and a moderate carb. The 383 likes to breath so a bigger intake manifold like the RPM or Stealth would be a better choice but the performer and action + manifolds will work. Carb also depends on application but on the street under 6000 RPM you could get away with a 650! A 750 would make more power but is the largest you should go unless you are all out racing!

#### **Are there any special things I need to pay attention to when assembling the motor?**

Yes you must check cam to rod clearance and block to rod clearance. Both should be .050" minimum! All other specs will be the same as a 350 or whatever the manufacture specifies.

#### **Should I run a high volume oil pump?**

Only if you have a deep extra capacity oil pan. I personally do not like or condone high volume oil pumps on any engine. A stock oil pan will be sucked dry by a high volume pump @ 4500 RPM under hard acceleration. I have rebuilt more than a few motors that burnt up this way.