



ICS Chain Applications, Tensioning, and Cutting Tips

			Abrasive Material Stone Brick Cinder Block	Soft Natural Stone, Concrete Hardness ≤3000psi	Medium Concrete Hardness 3000psi-6000psi	Hard Concrete Hardness ≤8000psi		
FORCE3	Standard		♦♦	♦♦			♦	Good
FORCE3	Premium		♦♦	♦♦♦	♦♦♦		♦♦	Better
FORCE3	Brick	♦♦♦♦					♦♦♦♦	Excellent
							♦♦♦♦	Best

			Abrasive Material Stone Brick Cinder Block	Soft Natural Stone, Concrete Hardness ≤3000psi	Medium Concrete Hardness 3000psi-6000psi	Hard Concrete Hardness ≤8000psi		
FORCE4	Standard		♦♦	♦♦♦	♦		♦	Good
FORCE4	Premium S		♦	♦♦	♦♦♦		♦♦	Better
FORCE4	Premium L		♦	♦♦	♦♦♦		♦♦♦	Excellent
FORCE4	Wide Kerf		♦	♦♦	♦♦♦		♦♦♦♦	Best
FORCE4	Sandwich		♦	♦♦	♦♦♦		♦♦♦♦	
FORCE4	Cross-Link		♦♦♦	♦♦♦	♦♦♦		♦♦♦♦	
FORCE4	Texas					♦♦♦♦		
FORCE4	Abrasive	♦♦♦♦						

			Ductile Iron / Cast Iron / AC Pipe / Clay Pipe	HDPE		
PowerGrit Standard		♦♦♦			♦♦♦	Excellent
PowerGrit XL		♦♦♦♦	♦♦♦		♦♦♦♦	Best

There are several variables when it comes to cutting with diamond chainsaws; the amount of water, the hardness of the aggregate, the shape of the aggregate, and operator experience.

The #1 item when it comes to reducing cost is operator experience

FORCE3 Chains are designed to be used with the full line of ICS gas power cutters, and 814PRO hydraulic saws. These chains offer the ultimate combination of versatility and affordability. Available in three configurations to match your specific application and cutting challenges.



FORCE3 Standard

Fast cutting, economical chain for everyday use.



FORCE3 Premium

Best chain to cut harder aggregates and heavier rebar.



FORCE3 Brick

Larger segments for longer life. Best for cutting brick, block and more.

Designed to be the strongest, longest lasting diamond chains ever made, the FORCE4 series delivers unrivaled performance in professional cutting applications. With eight different configurations, there is a FORCE4 chain to meet any cutting challenge.



FORCE4 Cross-LINK Faster cuts, smoother handling, longer life. With twice the diamond segments of similar sized FORCE4 chains.



FORCE4 Standard Tough, general purpose diamond chain.



FORCE4 Premium L Delivers longer life in hard aggregate.



FORCE4 Premium S Speed and strength in one diamond chain.



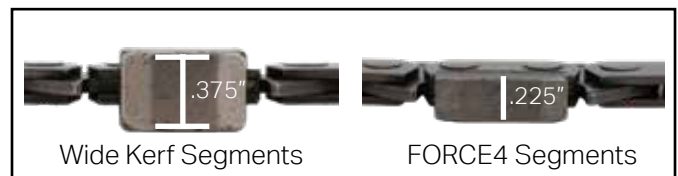
FORCE4 Abrasive Excels in the most abrasive cutting environments.



FORCE4 Sandwich Improved cut straightness and longer side clearance.





FORCE4 Texas a soft segment for VERY HARD materials.



FORCE4 Wide-Kerf Best for door installation - while supplies last.

Ductile Iron Cutting Diamond Chains

PowerGrit		Designed to cut ductile iron, cast iron, and more.
PowerGrit XL		Specifically designed to cut high-density polyethylene (HDPE)



CHAIN TENSIONING

The largest independent ICS Dealer

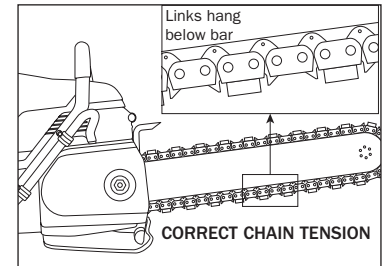
⚠ IMPORTANT ⚠

A properly tensioned chain will optimize cutting performance. The tensioning rule of thumb for a concrete cutting chain saw is that a properly tensioned diamond chain must not be bowstring tight and can be pulled freely around the guide bar by hand easily without binding.

PROPER CHAIN TENSION

Chain tension is looser than wood chain.

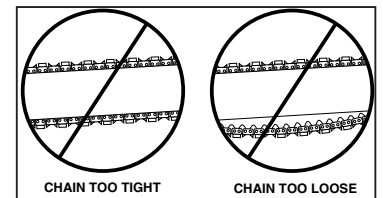
If the chain is too loose, it could come off the bar, or it will allow the drive sprocket to spin without turning the chain, which can chew up the chain drive links. If the chain is too tight, a lot of the saw's power goes into turning the chain rather than into the cut. In extreme over-tightened cases, the saw may not be able to turn the chain at all. In addition, damage can occur to the bar nose and premature stretch may occur.



HOW TO CHECK

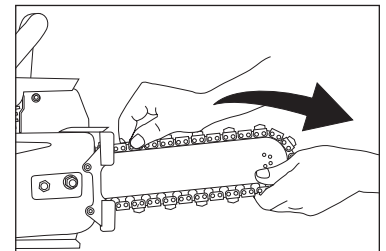
Proper tension should allow drive links to hang below bar.

Before cutting, check for proper tension by pulling the chain around the bar by hand. If you cannot easily pull by hand, the chain is too tight and needs to be loosened.



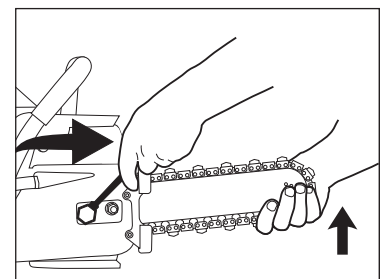
WHEN TO TENSION

All chains have a tendency to stretch when used. Diamond chains stretch more than wood cutting chains because of the abrasive materials they are cutting. When a chain stretches to a point where the drive links are hanging approximately 1/2 in - 3/4 in (12 - 18 mm) below the bar, it's time to tension the chain.



HOW TO TENSION

To tension the chain, first loosen the side cover nuts, then while holding the nose of the bar up, use a screw driver to turn the tensioning screw clockwise until the chain drive links hanging below the bar are just beginning to enter the bar groove. Continue to hold up on the nose of the bar and firmly tighten the side cover nuts, (20 ft-lbs, 27 Nm). And remember, it's the side cover nuts that hold the bar in position.



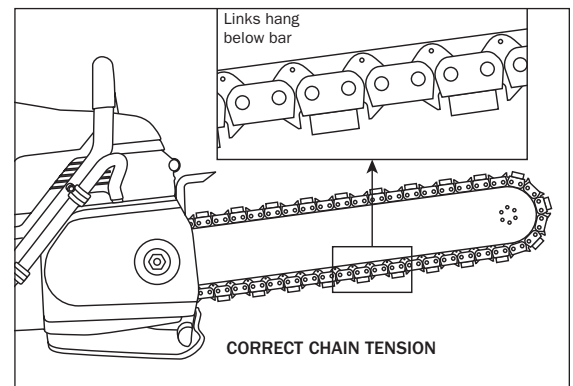
HOW TO PREVENT CHAIN TENSIONER BREAKAGE

Do not attempt to adjust the tensioner without first loosening the side cover nuts. Do not use the saw without making sure the side cover nuts are tight. If the side cover nuts are not tight, the bar can slip backwards during cutting and break the tensioner pin.

CHAIN TENSIONING

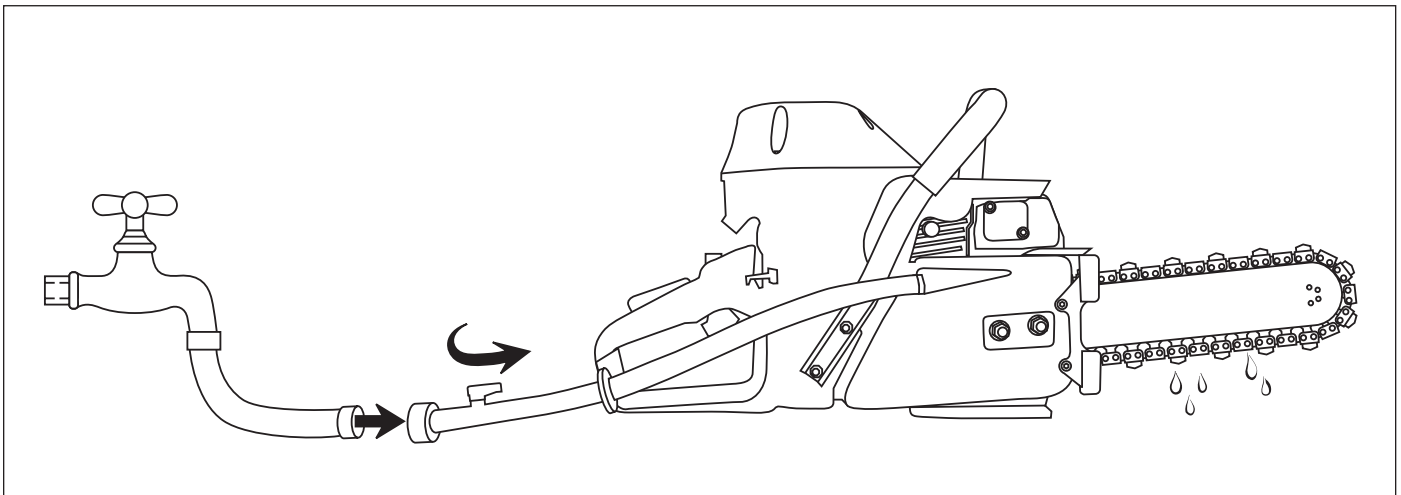
ADDITIONAL INFORMATION

Concrete cutting chainsaws operate with looser chain tension than wood chainsaws. It is common, especially on gas powered, concrete cutting chainsaws to have the drive links hang completely out of the bar. Wood cutting chainsaws use oil to lubricate the chain. The oil makes the chain very slippery and allows the drive links to fully nest between the teeth of the drive sprocket. Concrete cutting chainsaws require water for cooling and flushing the cut. Water is not as good as oil as a lubricant. Also, there are concrete particles mixed in with the water. As a result, sometimes the drive links do not nest properly on the drive sprocket. When this happens, the chain acts like it got tighter. There seems to be tight spots and loose spots as you pull the chain around the bar. If you tension when the chain is in one of the loose spots, it will be too tight at some point in it's rotation around the bar. Rotating the chain completely around the bar by hand will let you know you have the chain properly tensioned.



ADDITIONAL TENSIONING TIPS:

1. To reduce chain stretch and tensioning downtime, use 20 psi (1.5 bar) or greater water pressure.
2. Oil the chain at the end of the day to prevent rust but be careful not to over tension in this condition.
3. When pulling the chain around the bar by hand, be careful not to touch the bar with thumb or forefinger. The bar rails can be very sharp. Grab only the diamond segments to pull the chain.
4. Always pull the chain away from the WallWalker®. The point of the WallWalker® can also be very sharp.
5. Always turn the engine off before tensioning the chain.

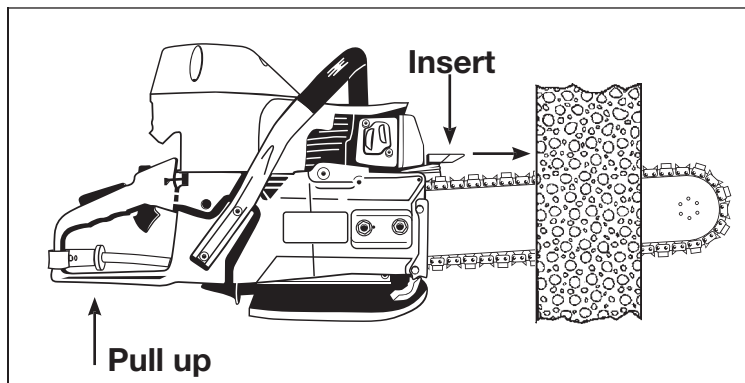




CUTTING TIPS

MAKING YOUR FIRST CUT:

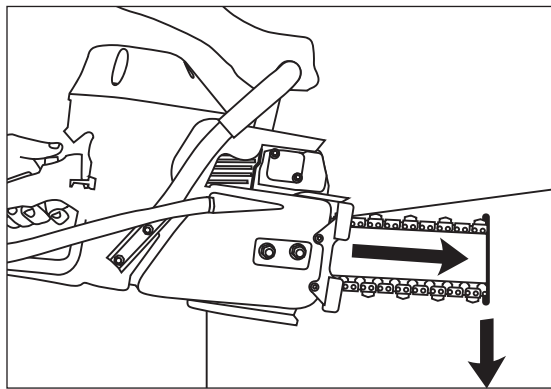
1. **Outline the cut** with a permanent marker.
2. **Start the saw and after a brief warm-up period, rev and hold the trigger on full throttle.** Always use full throttle when cutting. Refer to “Starting the Saw” tip sheet.
3. **Carefully align the nose of the bar with the cut line,** slowly touch the wall with the chain and plunge straight into the wall.
4. **Push hard enough so that the engine RPM drops 20 to 30%.** If the chain is stalling in the cut, you’re pushing too hard. If there is very little difference between free running full RPM and the cutting RPM, you’re not pushing hard enough. Listen for the “sweet spot” and maintain that RPM throughout any cut.
5. **Keep steady, firm pressure on the saw as the chain is cutting.** This will prevent chain bounce and chattering and help extend diamond life. Minimize arm motions.
6. **Use the WallWalker® to make cutting easier.** Insert the point of the WallWalker® into the cut and pull up on the rear handle. If saw is equipped with rubber pad WallWalker®, use the rubber pad for leverage in the same way.



CUTTING TIPS

ADDITIONAL CUTTING TIPS:

- a. **For the straightest cuts use the Step Cut method.** After outlining the cut, score the entire cut line approximately a half-inch deep using the nose of the bar. Next deepen cut by about two inches. Then plunge all the way through and complete the cut using the WallWalker® as a lever.
- b. **Plunge cut instead of starting on top of a wall.** Plunge cutting generally results in a straighter start. If the cut doesn't start straight, it will not finish straight. Also, plunging is the fastest and easiest mode of cutting.



- c. **When cutting heavy rebar.** Slowly rock the saw over the rebar, maintaining gray slurry water, so that you're always cutting concrete as well as steel. This will help keep the diamonds exposed. Also, expect less chain life when cutting heavy rebar.
- d. **Maintain proper chain tension.** The tensioning rule of thumb for a chain-based cut-off saw is that the chain should be tight but must be able to be pulled around the bar by hand. See "Chain Tensioning" tip sheet.
- e. **If the saw begins to cut consistently crooked.** Turn the guide bar over and use the other side. If problem persists, dress the worn rails with belt grinder. Note: The normal life of a guide bar is 2 to 3 chains. Heavy rebar can shorten bar life.
- f. **When using a new chain, it may be necessary to open up the diamonds.** To do this, make a few cuts into an abrasive material like a cinder block. Opening the diamonds will increase the cutting speed.