

What Most People Don't Know About Winching



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Approved

**INSIDE: Discover how to get
in The Pulling Power Zone™
and stay there!**



get
serious
S
SUPERWINCH

Educational material from Superwinch, Inc.

3 Ways to Get the Most from Your Winch Purchase.

1. Physics of The Pulling Power Zone™

How the Laws of Physics govern winch performance.

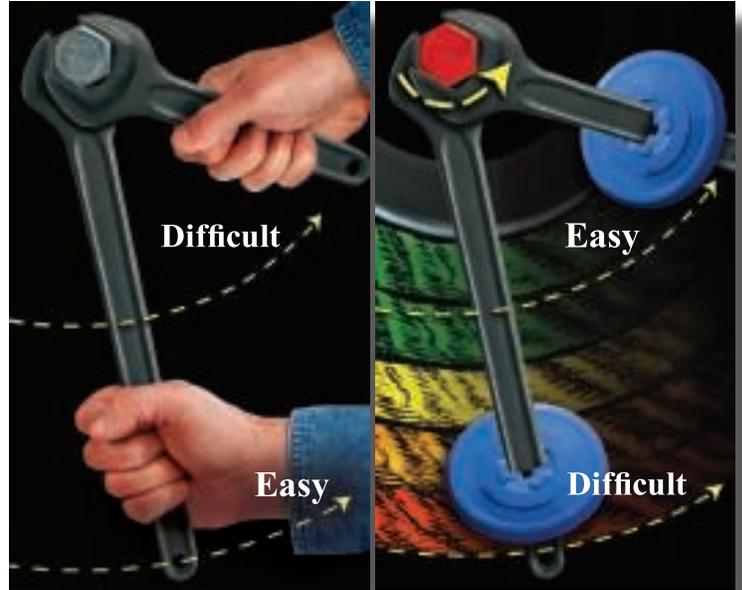
We know that using a long-handled wrench makes a job easier. You pull further away from the bolt – a longer turning radius.

WHAT IF THE BOLT WAS DOING THE PULLING?

Then the opposite is true. It's easier for the bolt to turn the same weight when it's closer to the bolt – a shorter turning radius.

Just like the drum on a winch.

As layers of rope build up, pulling the same weight requires greater force, robbing your winch of power. The first 2 layers of rope on the drum we call the Pulling Power Zone. Beyond 2 layers, pulling capacity can be reduced as much as 42%.



Get the most from your winch. Extra layers cut pulling power. Stay in The Pulling Power Zone.

Start each pull with a minimum of **5 wraps*** around the drum.

From the minimum 5 wraps of rope, to the maximum of **2 layers**** on the drum, you are working in the **Pulling Power Zone.**

* The industry safety standard. The rope fastener alone cannot support a heavy load.



** Pulling capacity is determined by the load a winch can pull with only the bottom layer of rope on the drum. For practical purposes, full capacity is retained with up to 2 layers.

- 5 Layers: Power drops 42%
- 4 Layers: Power drops 32%
- 3 Layers: Power drops 19%
- 2 Layers | **The Pulling Power Zone™**
- 1 Layer

The power loss percentages above are approximate.

2. Use a pulley block and double the capacity of your winch.

Another Law of Physics: double the line with a pulley block and you double the pulling capacity of your winch. Removing extra rope from the drum also allows you to work in the Pulling Power Zone.

Some typical pulls: a single-line, straight pull.

A typical double-line winch and pulley arrangement doubles winch capacity.

A redirected pull. If there's no straight, clear line to the anchor point, use a pulley block.



3. Keep the rope feeding through the fairlead as straight as possible.

This will help keep the rope wrapping smoothly across the drum. Rope feeding through the fairlead at a sharp angle will bunch up.



Choosing the Right Winch for the Job.



The Right **4x4** Winch



Select a winch with a capacity of 1½ times the Gross Vehicle Weight.

Approximate Vehicle Weights* and Suggested Winches**		
2007 Models	Gross Vehicle Weight (lbs)	Suggested Winch (lbs)
Jeep Wrangler	4900	8500/9000
Jeep Grand Cherokee 3.7L V6	5700	8500/9000
Dodge Ram Reg Cab LB	6600	9000/10,000/12500
Land Rover HSE	6834	9000/10,000/12,500
Toyota Tundra Reg Cab	7000	10,000/12,500
Chevrolet Tahoe LS 4dr	7200	10,000/12,500
Hummer H2	8600	12,500/16,500
Ford F-250 Superduty	9000	12,500/16,500
GMC 2500HD Ext Cab LB Diesel	9200	12,500/16,500

Please consider your particular applications and choose accordingly.

* Figures for reference only. Check owner's manual for your vehicle.
 ** These recommendations are based on recovery of a fully loaded vehicle up a steep grade, an extreme application.

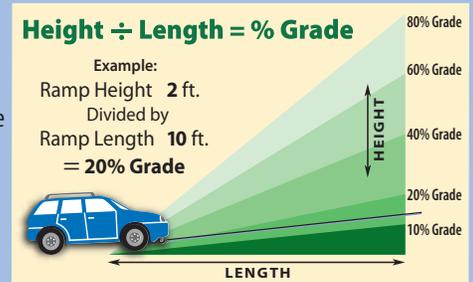
The Right **Trailer** Winch



Pulling anything with wheels up a slope involves some Laws of Physics, but calculating the Rolling Weight to determine the winch you need, is simple.

1. Determine Gross Vehicle Weight (GVW). This is the weight of the vehicle alone (curb weight), plus the weight of any items in and on the vehicle. (See examples in "The Right 4x4 Winch.")
2. How steep is the slope or ramp? Divide the height of the ramp by the length to determine the Grade.

It's a common mistake to confuse the degree of the angle of a slope with the grade percent. Angle (degree) is a geometric measure. You must know the grade % to find the Rated Line Pull you need.



With the GVW and the Grade % known, find the approximate size of the winch you need:

Approximate Gross Vehicle Weights	Choosing a Winch for Rolling Weight					Rated Line Pull (Suggested Winch*) lbs.
	Grade: 10%	20%	40%	60%	80%	
5,025	3,401	2,155	1,664	1,422	1,000	
10,050	6,803	4,308	3,331	2,845	2,000	
15,075	10,251	6,428	4,991	4,268	3,000	
20,100	13,597	8,643	6,655	5,690	4,000	
25,126	17,009	10,776	8,320	7,112	5,000	
30,151	20,408	12,931	9,983	8,535	6,000	
45,226	30,612	19,397	14,975	12,802	9,000	

* Winch size is approximate

Consider all factors. Some situations may require a larger or different type of pulling device.

The Right **ATV** Winch



Suggested Superwinch Models for Your ATV		
Vehicle	Weight Range (lbs)	Suggested Winch (lbs)
Less than 350cc	400 – 500	2000
350cc – 500cc	500 – 700	2500
Greater than 500cc	700 – 900	3000
UTV / Side-by-Side	700 – 1000	4000

Mounting an ATV winch:

There are many variations in ATV frames that require specific mounting kits for make, model and year. Superwinch has mounting kits for all popular models.

The Right **Utility & Multi** Winch

Most winches can be used to pull different types of loads in a variety of situations. To help ensure your safety and get the most from your purchase, follow these guidelines for choosing the proper winch:

1. If you are moving dead weight – a load without wheels or operable wheels (a vehicle stuck in the mud, for example) – refer to the information in the "The Right 4x4 Winch."
2. If you are moving Rolling Weight – a wheeled load that will not move by its own power – refer to instructions in the "The Right Trailer Winch" for choosing a winch based on weight AND the grade of a slope, such as a ramp.

Superwinch Safety

Choose the right winch, use the right accessories and follow all safety guidelines. Your Superwinch is a powerful machine and whether you use it for serious recreation or serious work, remember that pulling a very heavy load without proper equipment and preparation can be dangerous. For more information refer to the product guide at your retailer's counter or visit our website www.superwinch.com.

Never use a winch to move or lift people.

Never use a winch as a (vertical) hoist or to suspend a load.



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A Complete Line of Winches and Accessories

