

<b>Data Input</b>	
Waterline length in feet:	20.1 feet
Beam at the waterline in feet:	8.1 feet
Hull draft in feet (excluding keel):	1.5 feet
Vessel weight in pounds:	5292 lbs
Engine Horsepower:	8 HP
Number of engines:	1
Total Engine Horsepower:	<b>8 HP</b>
Engine R.P.M. (max):	3200 RPM
Gear Ratio:	1.95:1
Shaft R.P.M. (max):	<b>1641 RPM</b>
Number of shaft bearings (per shaft):	2
Desired speed in Knots:	6 knots

<b>Horsepower Calculations</b>	
This will calculate the maximum horsepower and torque available at the prop(s).	
Total available horsepower at the engine(s):	8 HP
Total available torque ft/lbs at the engine(s):	13 ft/lbs
Horsepower loss of 3% per gearbox:	- 0.2 HP
Horsepower loss of 1.5% per shaft bearing:	- 0.2 HP
Total horsepower available at the propeller(s):	<b>7.5 HP</b>
Total torque ft/lbs available at the propeller(s):	<b>24 ft/lbs</b>

<b>Speed &amp; Power Calculations</b>	
Basic displacement speed and horsepower required	
Displacement hull speed (1.34 X sqrt of waterline length):	6.01 Knots
Minimum horsepower required at propeller(s) for Hull speed:	11.5 HP
Calculations based on desired speed and available HP	
HP required at propeller(s) for <b>desired 6 knots</b> speed:	<b>10 HP</b>
Estimated maximum speed with <b>existing 8</b>	<b>5.35</b>

horsepower: This is the speed we will use for the propeller size.	Knots
<p>At this point it is important to note that all of the calculations above are based on full RPM and HP. Most engines are rated to run at a percentage of thier full RPM. This is what will determine your maximum cruising speed. The propeller sizing calculations below are based on 90% of full RPM. This gives the engine some reserve power to allow for variable loading in the vessel.</p>	

<b>Propeller Size</b>			
Number of blades	Diameter (inches)		Pitch (inches)
2 Blade	11.8	X	6.7
3 Blade	11.2	X	6.6
4 Blade	10.5	X	6.5
<p>The propeller sizes shown above do not contain calculations for cavitation or blade loading. If you find that the recommended propeller is too large to fit your vessel, you can try increasing the shaft speed. Failing this, you can reduce the diameter and increase the pitch at the expense of your propeller efficiency. The rule of thumb is 1 inch of diameter is equal to 1 1/2 to 2 inches of pitch.</p>			
<div style="text-align: center; border: 1px solid black; display: inline-block; padding: 5px 15px;">Go Back and Change Your Data</div>			

**Intructions**

This calculator is free to use as often as you wish. The calculations and results are based on imperical data and formulas. The results are only as acurate as the data you enter. The calculated propeller sizes are based on standard propeller designs;  
 2 blade = 30% blade area ratio  
 3 blade = 50% blade area ratio  
 4 blade = 69% blade area ratio

**What it will do**

Calculate a propeller size based on the data you enter  
 Calculate a vessel speed based on the available horsepower  
 Calculate the horsepower required for a desired speed

**What it won't do**

No calculations for cavitation  
 No calculations for blade area ratio

No calculations for towing, bollard thrust, etc.