



RACE ALTERNATORS

How to Choose a Race Alternator & Pulley

STEP 1: Determine Your AMP Load

Make a list (see example chart) of all your electrical components and total.

DETERMINE YOUR TOTAL AMP LOAD

#	Accessory	Ex. Amps	Amp Load
1	CDI Ignition	6-36	
2	HEI Ignition	6-10	
3	Electric Fuel Pump (Each)	7-15 ea	
4	Electric Water Pump	12-25	
5	Electric Fans (Each)	10-50 ea	
6	Headlights / Tail Lights	10-20	
7	Brake Blowers - Each	8-10 ea	
8	Driver Cooling Suit	15-30	
9	Data Recorder	2-10	
10	Trans Brake	12-20	
11	Nitrous Solenoid (Each)	5-30 ea	
12	Gauges	2-6	
13	On Board Radio	4-10	
14	Line Lock	4-8	
15	Delay Box	8-12	
16	Throttle Stop	5-15	
17	Intercooler Pump	10-20	
18	Other		
TOTAL AMP LOAD			

Why did my Powermaster racing alternator not come with a pulley?

The pulley systems and ratios in racing vary widely. Some use a matched pulley setup. Others have custom pulleys made to work for their application.

FAILURE to follow these guidelines will VOID your Warranty!

STEP 2: Select Your Alternator

Select the correct alternator to cover your total amperage load.

STEP 3: Select Your Charge Wire

Select the correct charge wire gauge based on amp load and wire length.

AMP LOAD	CHARGE WIRE LENGTH		
	5' - 10'	11' - 19'	20' - 28'
30 - 70	8 AWG	6 AWG	4 AWG
70 - 100	6 AWG	4 AWG	2 AWG
100 - 150	4 AWG	2 AWG	0 AWG
150 - 200+	2 AWG	1/0 AWG	2/0 AWG

STEP 4: Select Your Pulley

Determine alternator pulley ratio and ensure alternator shaft RPM is less than rated Max.

WARNING: Max Alternator Shaft RPM
DELCO Style: 18,000 • DENSO Style: 20,000

PULLEY RATIO CHART ALTERNATOR PULLEY DIAMETER (INCHES)

CRANK PULLEY DIAMETER (INCHES)	ALTERNATOR PULLEY DIAMETER (INCHES)								
	2	2.25	2.3	2.5	2.6	3.25	3.5	3.75	4
3	1.5	1.3	1.3	1.2	1.2	0.9	0.9	0.8	0.8
3.5	1.8	1.6	1.5	1.4	1.3	1.1	1.0	0.9	0.9
4	2.0	1.8	1.7	1.6	1.5	1.2	1.1	1.1	1.0
4.5	2.3	2.0	2.0	1.8	1.7	1.4	1.3	1.2	1.1
5	2.5	2.2	2.2	2.0	1.9	1.5	1.4	1.3	1.3
5.5	2.8	2.4	2.4	2.2	2.1	1.7	1.6	1.5	1.4
6	3.0	2.7	2.6	2.4	2.3	1.8	1.7	1.6	1.5
6.5	3.3	2.9	2.8	2.6	2.5	2.0	1.9	1.7	1.6
7	3.5	3.1	3.0	2.8	2.7	2.2	2.0	1.9	1.8
7.5	3.8	3.3	3.3	3.0	2.9	2.3	2.1	2.0	1.9
8	4.0	3.6	3.5	3.2	3.1	2.5	2.3	2.1	2.0

$$\text{Alternator RPM} = \left(\frac{\text{Pulley Ratio}}{\text{Crank Pulley Diam.}} \right) \times \text{Engine RPM}$$

Questions? Call or e-Mail Powermaster's Tech Line!