

MILSPEC Alternators



Milspec
MANUFACTURING

SUBSYSTEMS MANUFACTURER TO DEFENCE AND INDUSTRIES

History & Quality

Starting out with just one client, our first product was our 100A alternator. From there we have worked hard to become the premier designer and manufacturer of brushless alternators and portable power systems for defence forces across the world, offering an extensive range of alternators from 120 - 900 amps.

With over 15,000 Milspec alternators in the Australian Defence Force alone, this is a testament to our ability to consistently delivery quality, on-time products, with a commitment to continuous development.



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THALES Bushmaster



NAVISTAR Husky



BAE M113

Permanent Magnet Alternators

Vehicle alternators were first used by the military from WWII to power radio equipment on specialist vehicles. Post-war, other vehicles with high electrical demands, such as ambulances and radio taxis, could also be fitted with optional alternators. These alternators used brushed inductor alternator technology.

Post WWII brushless alternators were developed delivering improved reliability and longer life. Both brushed and brushless inductor alternator technology require vehicle revs to create output, typically producing 60 to 100 amps at vehicle idle. As the vehicle rev range increases so does the alternator output. Most military vehicles continue to use this technology and most defence forces struggle with the availability of amps at vehicle idle.

Milspec has developed a range of permanent magnet alternators that solves the power requirements at vehicle idle. Permanent magnet alternators deliver instant power availability. Milspec's permanent magnet alternators deliver 400-800Amps at idle. As a result, all battle systems can then be active at idle.

- 90% of Amps at vehicle idle: 400Amps-800Amps.
- 85% efficiency (world leading efficiency levels.)
- IP67: water ingress protection to 1 metre.

Compliant to:

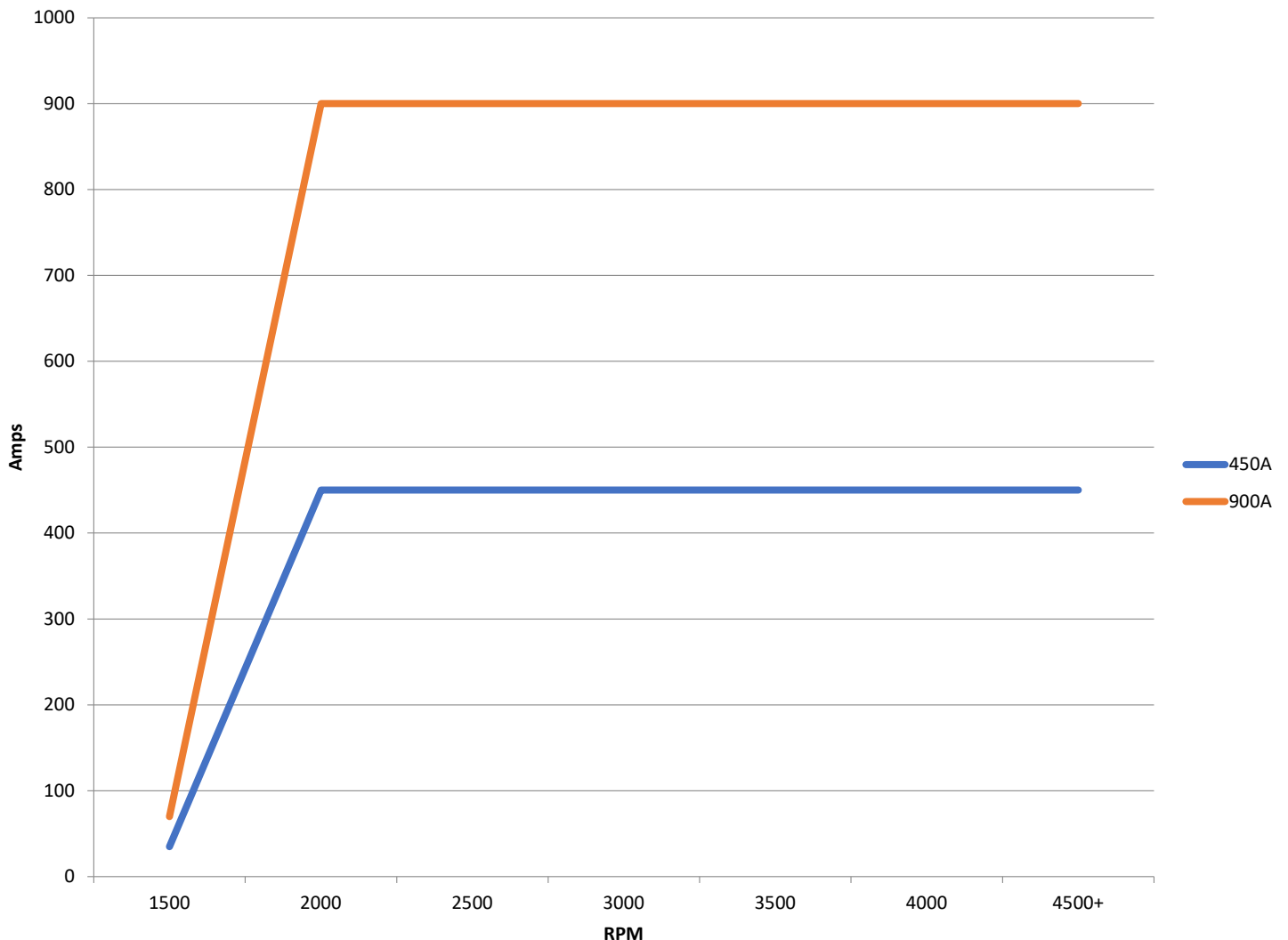
- Mil STD 461: electro-magnetic defence capability standard.
- Mil STD 810: environmental military standard.
- Mil STD 1275: voltage capability standard for military vehicles.

If you require 400-900 amps at vehicle idle Milspec has the solution!

Specifications		Units	Alternators	
Model			450A Water Cooled	900A Water Cooled
Type			Brushless	Brushless
Cut in Speed (rpm)	RPM		1800	1800
Max Output	Amps		450	900
Max Continuous Output	Amps		450	900
Weight	KG		40	80
Voltage Regulation	Volts		28.3	28.8
Ambient Operating Temp	Celsius		-40°C to +105°C	
Maximum Rotor Speed	RPM		10000	10000
Mounting	Specific		Custom	Custom

#1 Coolant Temperature Dependent

Alternator Performance Curves



450A Water Cooled Alternator

Brushless design.

Complies to Mil-STD-461.

Compact and reliable, weighing 40kg.

Long service life 11,000+ hours.

Designed for the harshest environments from sub-zero temperatures to desert climates.

Alternator output available from 1800RPM.

Maximum current output 450 Amps.

Factory configurable voltage and current limits.

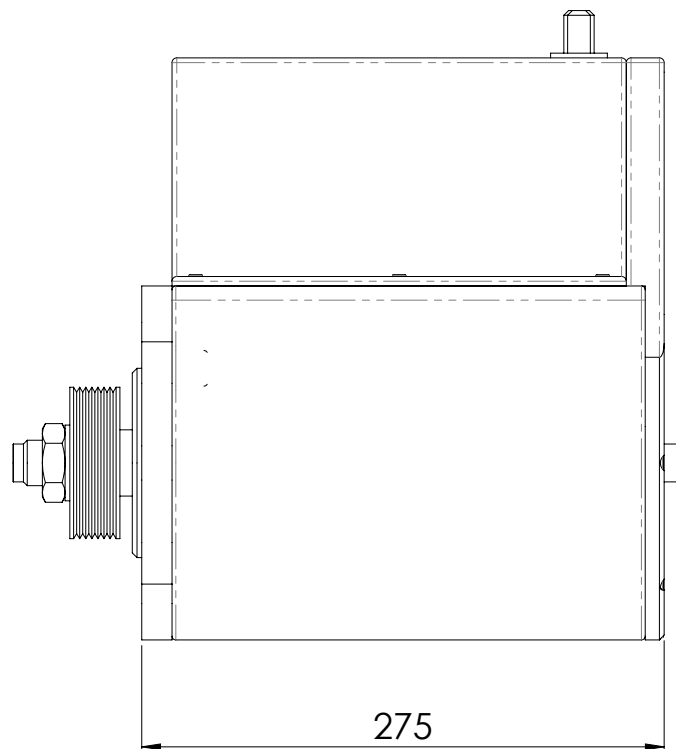
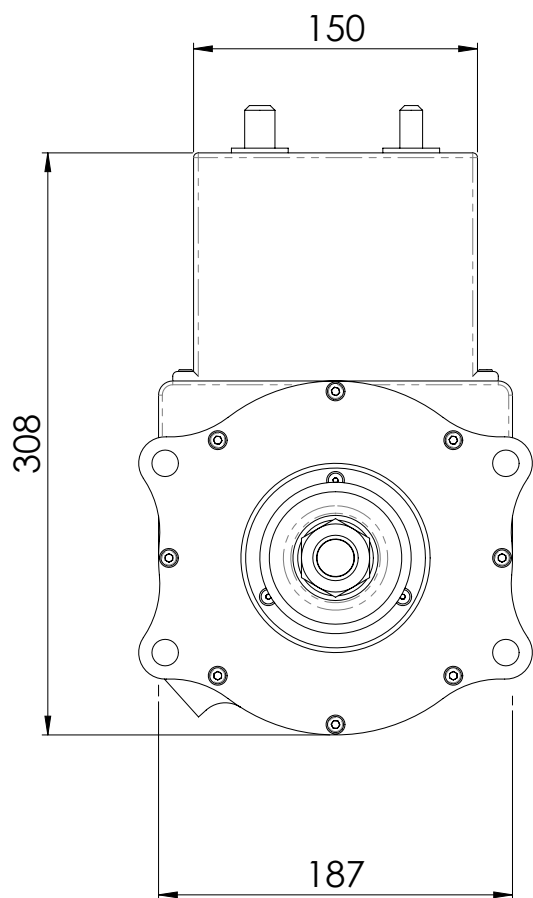
Maximum operating speed - 10,000RPM.

Engine idle output of 400 Amps.

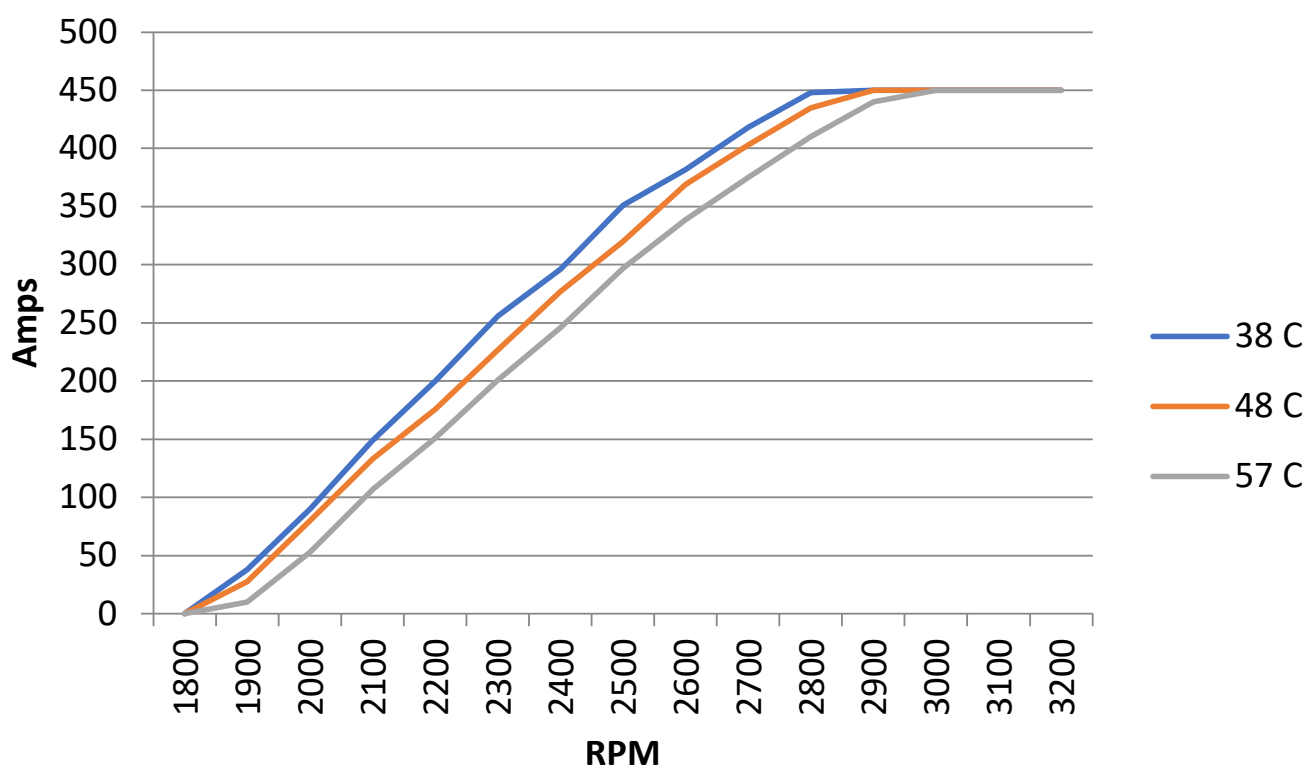
CAN J-1939 interface.



Specifications	
Part Number:	450A-000-001
Type	Brushless Permanent Magnet
Cut in Speed	1800 RPM (Alternator)
Maximum Output	450 Amps
Weight	40 Kg
Voltage Regulator	Programmable, typical 28.3 Volts
Voltage Range	14 - 30 Volts DC
Operating Ambient Temperature	-40° to 105 °C
Maximum Rotor Speed	10,000 RPM
Regulator Unit	Integrated, Solid State.
Max Continuous Output	450A
Mounting	Custom
Ignition Warning Light	Yes
Electrical Connection	M12 (+ve), M10 (-ve)
Cooling	Water Cooled
Coolant Temperature	-40° to +85 °C
Coolant Flowrate	>3 litres /min



Alternator Performance Curves







900A Water Cooled Alternator

Brushless design.

Meets military standards Mil STD 461, Mil STD 810 and Mil STD 1275.

Compact and reliable, weighing 80kg.

Long service life 11,000+ hours.

Designed for the harshest environments from sub-zero temperatures to desert climates.

Alternator output available from 1800RPM.

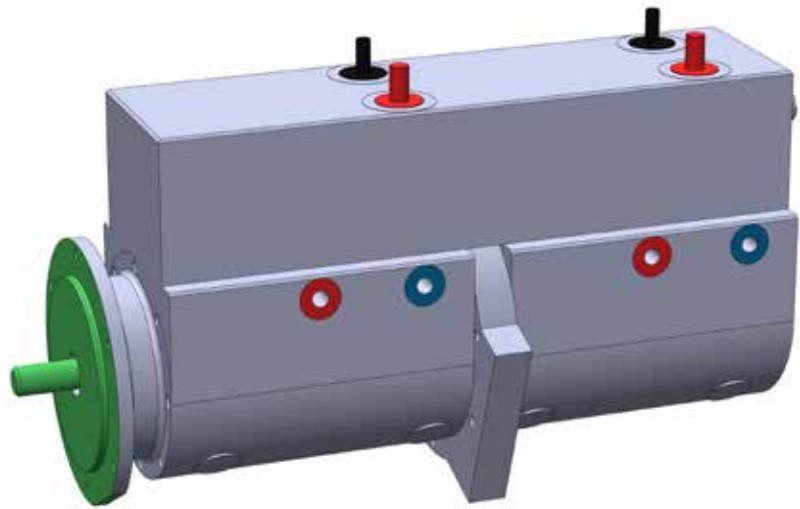
Maximum current output 900 Amps.

Factory configurable voltage and current limits.

Maximum operating speed 10,000RPM.

Engine idle output of 800 amps.

CAN J-1939 interface.



Specifications	
Part Number:	900A-000-001
Type	Brushless Permanent Magnet
Cut in Speed	1800 RPM (Alternator)
Maximum Output	900 Amps
Weight	80 Kg
Voltage Regulator	Programmable, typical 28.8 Volts
Voltage Range	14 - 30 Volts DC
Operating Ambient Temperature	-40° to 105 °C
Maximum Rotor Speed	10,000 RPM
Regulator Unit	Integrated, Solid State.
Max Continuous Output	450A
Mounting	Custom
Ignition Warning Light	Yes
Electrical Connection	2x M16 (+), 2x M12 (-)
Cooling	Water Cooled
Coolant Temperature	-40° to +85 °C
Coolant Flowrate	>6 litres /min (2x 3 litres / min)





Inductor Alternators

Milspec formed in April 2002 as a result of a management buyout of Australian Defence Industries Live Fire Target Systems design & manufacturing capability. As part of this management buyout Milspec gained the IP for a number of military grade alternators that were developed in conjunction with the US, Canadian and UK defence forces as part of a collaborative partnership to minimise vehicle component variations. Australia has been involved in the seamless production of military grade alternators since the 1970's.

From those early days Milspec have taken that base line technology and developed a full range of alternators for military vehicles. Today Milspec offers a range of inductor alternators from 120 amps to 360 amps.

The development of stator winding technology and electro-magnet strength has allowed Milspec to create market leading alternators delivering world class output/kg and output/cubic meter. This performance from our inductor alternator range is replicated and enhanced through our complete range of permanent magnet alternators.

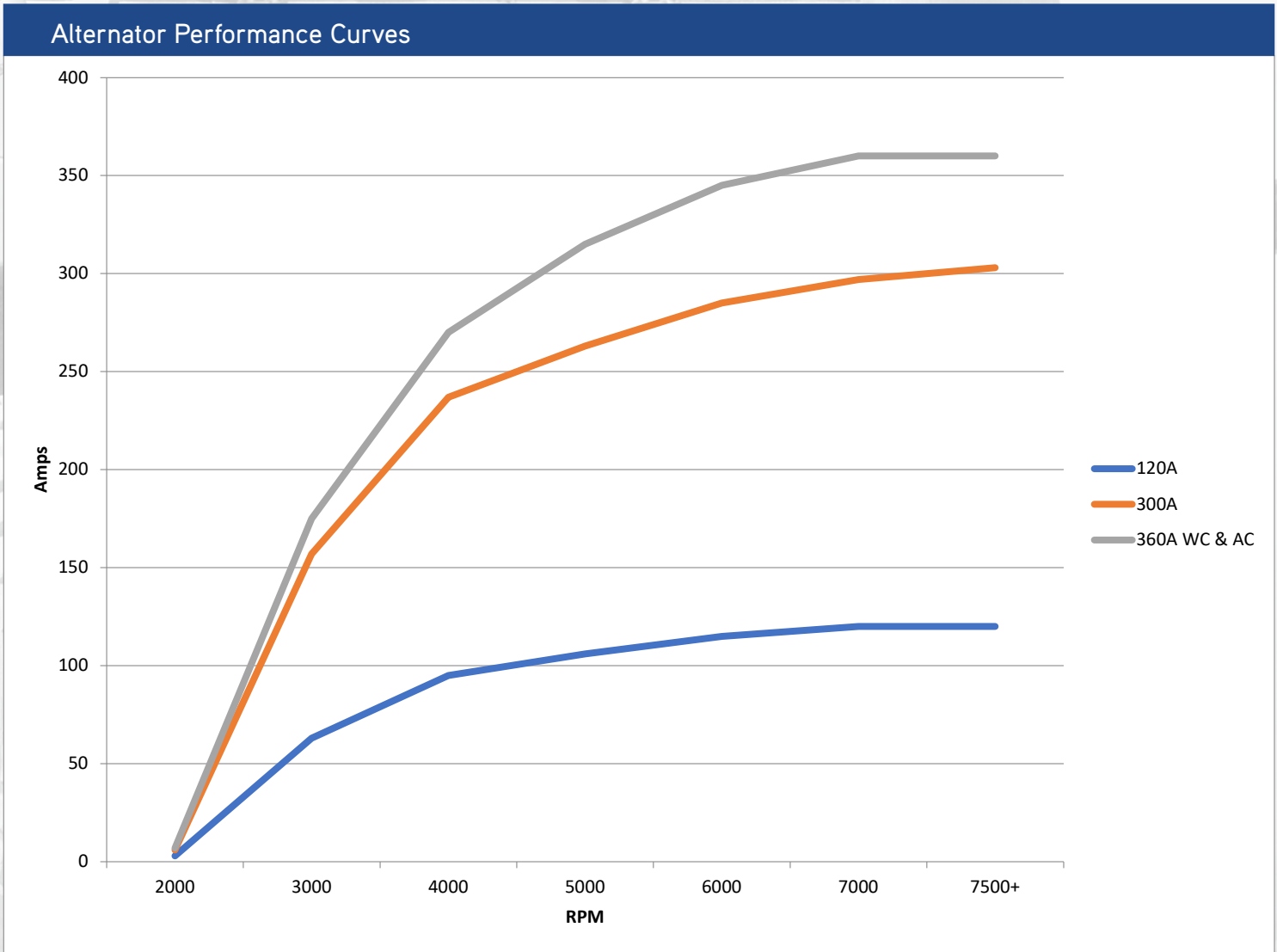
Compliant to:

- Mil STD 461: electro-magnetic defence capability standard.
- Mil STD 810: environmental military standard.
- Mil STD 1275: voltage capability standard for military vehicles.

If you require 120-360 amps at vehicle idle Milspec has the solution!

Specifications		Units	Alternators			
Model			120A Air Cooled	300A Air Cooled	360A Air Cooled	360A Water Cooled
Type			Brushless	Brushless	Brushless	Brushless
Cut in Speed (rpm)	RPM		1665	1650	1600	1600
Max Output	Amps		120	300	360	360
Max Continuous Output	Amps		120	285	320	340 ^{#1}
Weight	KG		24	24	32	27
Voltage Regulation	Volts		28.4	28.3	28.6	28.6
Ambient Operating Temp	Celsius	-15°C to +92°C				
Maximum Rotor Speed	RPM		13000	13000	13000	12000
Mounting	Specific		SAE J 180	SAE J 180	SAE J 180	Clamp

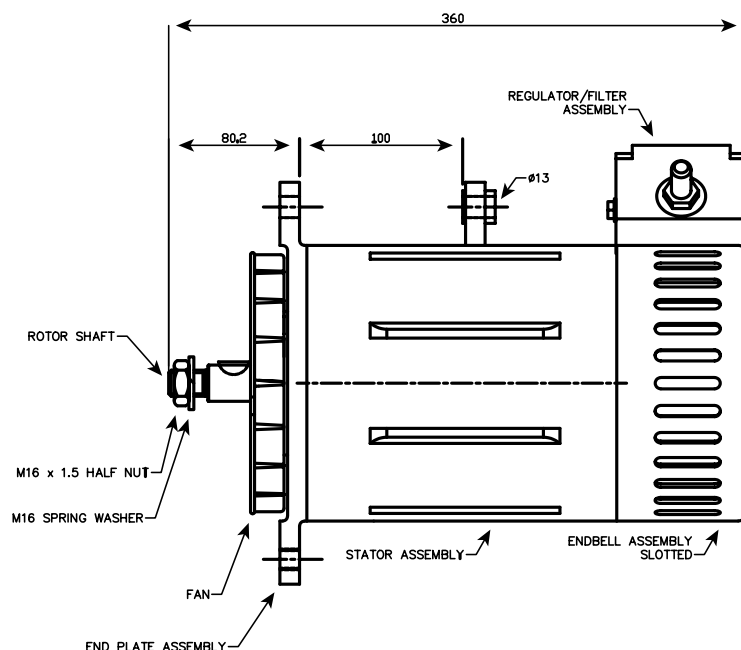
#1 Coolant Temperature Dependent



120A Air Cooled Alternator

Milspec's most successful alternator with over 15,000 in service. Commissioned on the Unimog and Landrover vehicles, this unit remains available for replacement parts. This air cooled alternator has been modified from its original 100 amp output to now deliver 120 amps while maintaining its original diameter. Milspec's engineers will work with you and your team to configure your engine in 3D CAD to align the unit to your vehicle requirements.

Specifications	
Part Number:	120A-AC-001
Type	Inductor Alternator
Cut in Speed	1665
Maximum Output	120A
Weight	24kg
Voltage Regulator	28.4 V
Voltage Range	26 - 30 V
Operating Ambient Temperature	-40 - 93 C
Maximum Rotor Speed	13000 RPM
Regulator Unit	Integrated, Solid State.
Max Continuous Output	120 A
Mounting	SAE J 180
Ignition Warning Light	Optional
Electrical Connection	M12 +ve, M10 -ve
Cooling	Air Cooled



300A Alternator Case Study

In 2004 Milspec was approached by Thales to develop a 300A alternator for the Bushmaster vehicle to replace the current 100A unit.

Working closely with Thales, our alternator was designed and developed around exact requirements. Trials were conducted in the vehicle for EMC, temperature and reliability, proving that we were able to design and develop an alternator that fit into the confines available, our alternator was selected for the highly successful Bushmaster vehicle.

Given the success of our alternator in the Bushmaster, Navistar assessed our unit during the process of identifying a suitable alternator for their Husky vehicle. Navistar found that our unit was the worlds smallest military spec alternator in their capacity range. Our 300A alternator was selected by Navistar to be installed in their Husky vehicle.

Our 300A alternator is now in service with at least a dozen armed forces worldwide, with more than 1000 units of different variants in service in the Australian Defence Force.

The success of our 300A alternator has allowed us to develop our range of permanent magnet and inductor alternators to extend up to a 900A alternator. Contact Milspec today to see how we can work with you to develop an alternator to suit your needs.

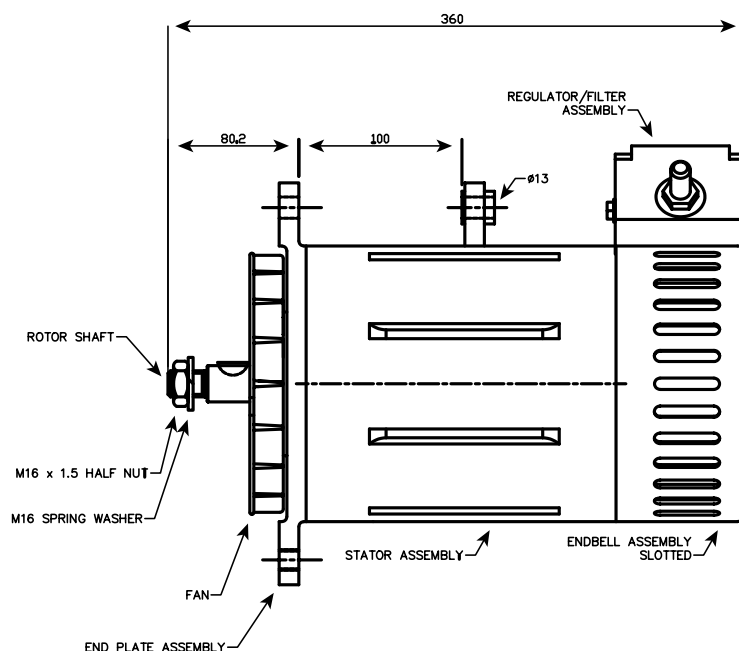




300A Air Cooled Alternator

The Milspec 300A alternator has been in use in both Australian and International Defence Forces, and is currently installed and in service on the highly successful Thales Bushmaster and Navistar Husky vehicles. Manufactured and tested in-house to meet standards Mil STD461, Mil STD 810, and Mil STD 1275, our alternators are lighter than competitors and feature a double seal on the ball bearing, increasing the life span to 11,000hrs.

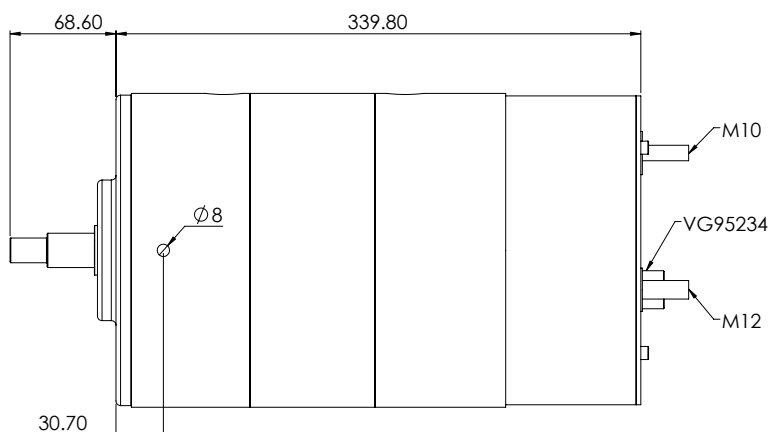
Specifications	
Part Number:	930213-300
Type	Inductor Alternator
Cut in Speed	1665
Maximum Output	300A
Weight	24kg
Voltage Regulator	28.6 V
Voltage Range	26 - 30 V
Operating Ambient Temperature	-40 - 93 C
Maximum Rotor Speed	13,000 RPM
Regulator Unit	Integrated, Solid State.
Max Continuous Output	280 A
Mounting	J-180
Ignition Warning Light	Optional
Electrical Connection	M12 +ve, M10 -ve
Cooling	Air Cooled



360A Water Cooled Alternator

Our 360A water cooled alternator allows the retrofit of an existing water-cooled system to the high output Milspec 360 amp unit. The technology has evolved from our highly reliable 300A air cooled unit. The fully sealed water jacket allows this unit to run up to 360 Amps with a maximum water inlet temperature of 95 degrees celsius. Using SAE J180 vehicle mount system this unit is compatible with multiple military vehicle applications. Milspec will work with you and your team to configure your Engine in 3D CAD models to align the unit to your vehicle requirements.

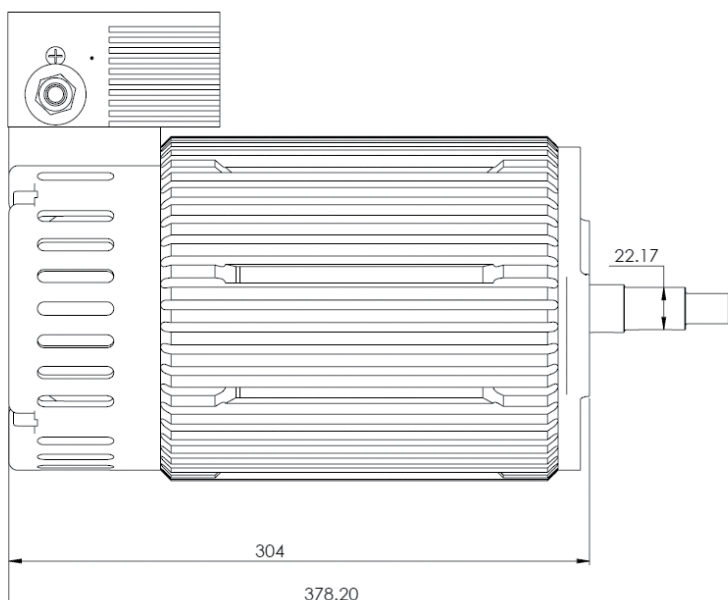
Specifications	
Part Number:	360A-WC-001
Type	Inductor Alternator
Cut in Speed	1600
Maximum Output	360A
Weight	26kg
Voltage Regulator	28.4 V
Voltage Range	26 - 30 V
Operating Ambient Temperature	-40 - 93 C
Maximum Rotor Speed	13000 RPM
Regulator Unit	Integrated, Solid State.
Max Continuous Ouput	340 A
Mounting	Clamp
Ignition Warning Light	Optional
Electrical Connection	M12 +ve, M10 -ve
Cooling	Fluid
Coolant Temperature	-40 - 85 C
Coolant Flowrate	3l/min



360A Air Cooled Alternator

As vehicle manufacturers struggle to meet military requirements for power at vehicle idle in a finite space, Milspec developed the 360A air cooled unit. This unit offers maximum capacity by volume over all of our inductor alternators. It uses the SAE J180 vehicle mount system which makes it compatible with multiple military vehicle applications. Milspec will work with you and your team to configure your engine in 3D CAD models to align the unit to your vehicle requirements.

Specifications	
Part Number:	360A-AC-001
Type	Inductor Alternator
Cut in Speed	1600
Maximum Output	360A
Weight	28kg
Voltage Regulator	28.4 V
Voltage Range	26 - 30 V
Operating Ambient Temperature	-40 - 93 C
Maximum Rotor Speed	13000 RPM
Regulator Unit	Integrated, Solid State.
Max Continuous Ouput	330A
Mounting	J-180
Ignition Warning Light	Optional
Electrical Connection	M12 +ve, M10 -ve
Cooling	Air Cooled



MILSPEC Portable Power



C4I KITS



AUXILIARY POWER UNITS



PORTABLE DISTRIBUTION UNITS



Milspec's Portable Power product range has developed as a result of our experience in designing and manufacturing military grade alternator products. This alternator technology was leveraged to produce a high performance, low weight range of units designed to meet MIL STD 461 and tailored to meet numerous applications. Milspec is working with world leading diesel and hydraulic technology companies to deliver a state of the art product to our customers. Contact Milspec today to see how we can meet your Portable Power needs.

MILSPEC APU-H-8.4/D-8.4



	Hydraulic	Diesel
Length	700mm	700mm
Width	280mm	400mm
Height	280mm	600mm
Weight	38kg	166kg
Output Voltage	28Vdc	28Vdc
Output Current	300A	300A
Output Power	8.4kW	8.4kW
Fuel Consumption	N/A	265g/kWh

MILSPEC APU-D-12

Length	720mm
Width	490mm
Height	620mm
Weight	145kg
Output Voltage	28Vdc
Output Current	430A
Output Power	12kW
Fuel Consumption	212g/kWh



MILSPEC APU-D-22

Length	1650mm
Width	650mm
Height	800mm
Weight	380kg
Output Voltage	28Vdc
Output Current	800A
Output Power	22.4kW
Fuel Consumption	212g/kWh

THALES PDU



Length	330mm
Width	200mm
Height	100mm
Weight	5kg
Input Voltage	20-36Vdc
Output Power	100W @ 12V

MILSPEC 60 kVA PDU

Length	940mm
Width	450mm
Height	555mm
Weight	70kg
Input Voltage	415V
Output Voltage	415V



MILSPEC 120 kVA PDU

Length	1152mm
Width	550mm
Height	600mm
Weight	80kg
Input Voltage	415V
Output Voltage	415V

Milspec
MANUFACTURING

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