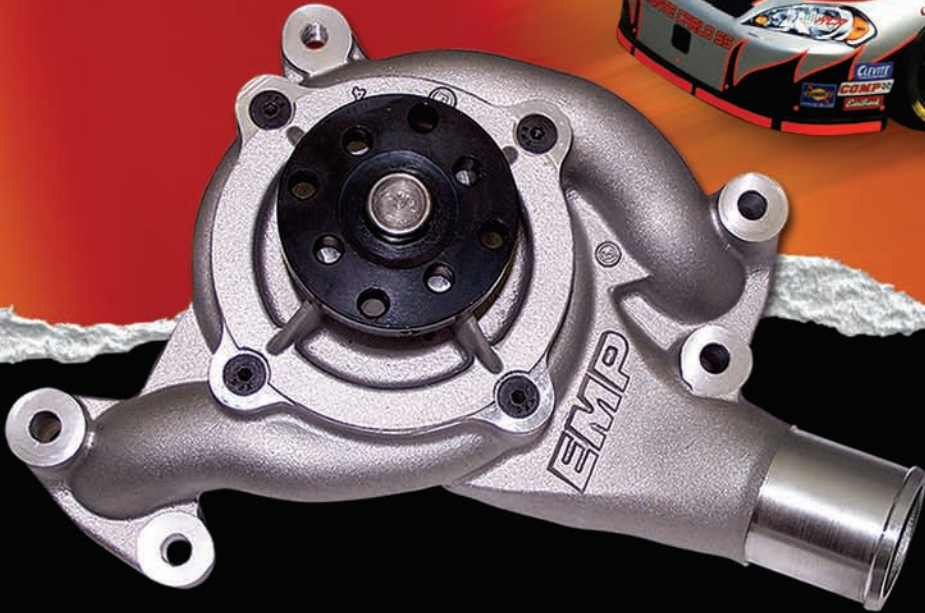


EMP Stewart COMPONENTS



INDUSTRY LEADERS IN
HIGH PERFORMANCE
ENGINE COOLING SYSTEMS

'07/08

PRODUCT CATALOG

HIGH FLOW water pumps

For over 25 years, Stewart Components has been a recognized leader in high-flow cooling system technology, and is currently developing the next generation of high efficiency advanced mechanical and electric water pumps and cooling system components. Stewart Components combines engineering expertise and advanced product development to bring forth innovative solutions.

Stewart water pumps are the #1 choice of professional engine builders, race teams and performance enthusiasts, from street rodding and OEM replacement applications, to the most extreme forms of motorsports in the world.



High Flow Water Pump Features:

- High Strength Castings
- Less Horsepower Consumption
- More Efficient Impeller
- Heavy Duty Bearing and Hub
- Hand Assembled
- One Year Guarantee

TABLE OF CONTENTS

BMW Pump	— Page 4
Ford 4.6 Pump	— Page 5
Pro Series Pumps	— Pages 6-7
Chevy - Stages 1-4	— Pages 8-11
Ford - Stages 1-4	— Pages 12-13
Chrysler - Stage 1	— Page 14
Marine - Stage 1	— Page 14
Stage 4 Flow Charts	— Page 15
Electric Water Pumps	— Pages 16-18
Electric Fan	— Page 19
Accessories	— Page 20
Tech Tips	— Pages 21-23



A special thanks to Richard Childress Racing, Detroit Speed & Engineering and Robert Yates Racing for use of their photos in our catalog.

STEWART COMPONENTS



Stewart Components is an industry leader in high performance automotive cooling system research and development. For over 25 years, Stewart water pumps have been the #1 choice for professional engine builders, race teams, and performance enthusiasts, from street rodding and OEM replacement applications, to the most extreme forms of motorsports in the world. The development and production of high performance water pumps has resulted in innovations like special high strength castings, larger flow passages, more efficient impellers and stronger bearings.

In January of 2001, Stewart Components was acquired by EMP, in a strategic move by EMP to expand its water pump line, while entering a new niche market focused on the high performance racing industry.



EMP is North America's leading supplier of cooling pumps in the diesel industry, and is a recognized leader in the development and advancement of pumps and pumping technology.

Together, EMP and Stewart Components have combined forces to bring advanced, innovative engineering and manufacturing abilities to the high performance market. Both companies have extensive knowledge and experience in the utilization of design and manufacturing software, and are able to apply sophisticated mathematical models to analyze specific issues applicable to the high performance market. These capabilities have led to great performance gains in previous water pump designs, along with altogether different products and ideas that have proven more efficient than current cooling system components.

BMW HIGH PERFORMANCE water pump



BMW WATER PUMP
Part# STE30330

BMW HIGH PERFORMANCE WATER PUMP

The BMW High Performance Water Pump is a direct replacement pump designed to fit a wide range of BMW engines with no modifications. That includes accepting the Factory Fan Clutch. The front of the BMW High Performance Water Pump is stock appearing giving it that classic BMW look while the back is all business.

Fits all M50/52/54 and S50/52 6 cylinder engines including:

- E36 chassis 1992-1999 320,325,328, 323 and M3 - [3 series]
- E46 chassis 1999-2005 320,323,325,328 &330 - [3 series]
- E34 chassis 1990-1996 520 & 525 - [5 series]
- E39 1999-2002 chassis 525 & 528 - [5 series]
- X5 SAV 1999-2002 6 cylinder models
- Z3 2.8 and 3.0 6 cylinder engines - 2 door convertibles

- **20% Flow Increase over Stock Pump**
- **Twice as Efficient as Factory Pump**
- **Much Less Parasitic Drag than other Pumps**
- **Racing or Stock Factory Replacement Applications**
- **Stainless Steel Impeller**
- **Heavy Duty Bearing**
- **High Quality Water Seal**
- **Limited Lifetime Warranty!**

FORD 4.6 V8 HIGH PERFORMANCE water pump

New For
2007!



FORD 4.6L HIGH PERFORMANCE WATER PUMP
Direct bolt-on, high performance for 4.6L modular Mustangs. A "must-have" for underdriven pulleys!

- Pump Fits Both 2 and 4 Valve Engines
- Increased Water Flow
- 8 Bladed, Stainless Steel Impeller
- Heavy Duty Bearing
- Long Life Carbon Graphite Seal
- Requires Less than 3HP
- Perfect for Stock or Aftermarket Pulleys

PART NUMBER

STYLE

FORD 4.6 WATER PUMP

STE50046L	Long Style
STE50046S	Short Style



STE50046L

Fits 1996 - Mid 2001 Mustangs

STE50046S

Fits Mid 2001 - 2004 Mustangs



BMW

FORD 4.6

PRO SERIES

CHEVY

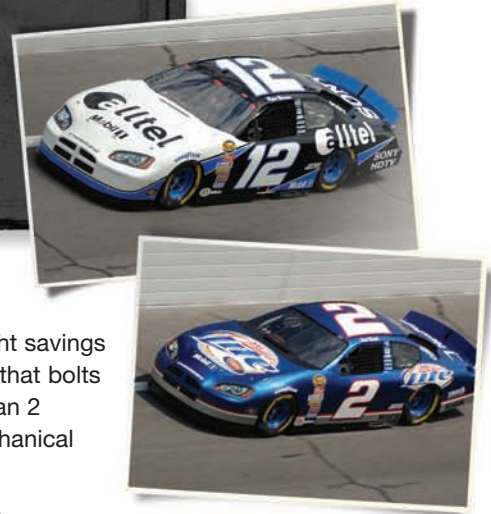
FORD

CHRYSLER

MARINE

PRO SERIES water pumps

EMP/Stewart Components Pro Series water pumps are the latest technology for Professional Racing. By utilizing a twin volute housing and replaceable water pump cartridge, they offer a perfectly balanced flow between both sides of the block. They use less horsepower and can move more water than any other pump. Pro Series pumps are cost efficient by allowing just the cartridge to be replaced, making it no longer necessary to change the whole water pump. The cartridge can be changed out very fast by removing the pulley and four bolts. All Pro Series water pumps use an o-ring to seal the cartridge and do not use a backing plate, so there is no gasket to leak. Whether you race circle track, road race or drag race, professional or amateur, you will benefit from these water pumps.



DODGE PRO SERIES

Originally developed by EMP for Mike Ege Racing; the Dodge Pro Series pump offers weight savings by utilizing the pump housing as the timing cover. This allows having a one piece housing that bolts right up to the block, with no additional water connections. The Dodge pump uses less than 2 horsepower at 50 gpm. It has a 1/2" billet hub and 3/4" shaft and can be used with a mechanical fan. This pump is being used in NASCAR Cup, Busch and Trucks.



SEA434445

SEH434445

**Replacement
Cartridge (not shown)**

- Fits R5 Block
- Requires 30% Less Power to Cool Engine
- Twin Volute Design
- Balanced Coolant Flow to Both Sides of Engine
- Replaceable Cartridge, Part# SEH434445
- Heavy Duty Bearing and Hub

FORD PRO SERIES

Developed by EMP for Yates Racing Engines, this is the newest addition to our line up. Designed to bolt up to the Yates belt drive. It can be used with a factory timing cover with the use of spacers.** This pump also benefits from a twin volute housing and replaceable pump cartridge using a standard 1-3/4" driver's side inlet. Consuming less than 2 horsepower at 50 gpm makes this the most efficient water pump for the Ford Windsor.



STE14000

STE50003

**Replacement
Cartridge**

- Fits Windsor Block
- Twin Volute Design
- Balanced Coolant Flow to Both Sides of Engine
- Replaceable Cartridge
- Heavy Duty Bearing and Hub

STE14020 Spacer Kit

** Kit includes 2 spacers, 2 o-rings and 2 gaskets. The STE14000 pump bolts up to Yates belt drive - spacers MUST BE USED when a timing chain is used.



PRO SERIES water pumps

GM PRO SERIES

The Chevrolet Pro Series water pump offers features to the Professional Engine Builder no other water pump can. By utilizing a twin volute design housing and replaceable water pump cartridge, they not only offer perfectly balanced flow between both sides of the block, but also are cost efficient. This pump uses less than 2 horsepower at 50 gpm. The Chevy Pro Series offers 16 AN side outlets while still using stock mounting holes, allowing all or some of the water to the sides of the block and heads. The 3/4" shaft and 1/2" billet hub allow the use of a mechanical fan.



STE50005

STE50003

Replacement
Cartridge

- Requires 30% Less Power to Cool Engine
- Twin Volute Design
- Balanced Coolant Flow to Both Sides of Engine
- Replaceable Cartridge
- Fits all SB-2 Engine Blocks
- Heavy Duty Bearing and Hub
- 1-3/4" inlet

STEWART/WEGNER PRO SERIES

Developed with EMP for Wegner Racing Engines, this pump offers more water flow and less horsepower draw than any other LSI pump. Using the factory mounting bolts and doing away with the restrictive thermostat allows this pump to flow up to 140 gpm. This pump has won the 24 Hours of Daytona and has seen duty in several street rods.



STE50025

STE50003

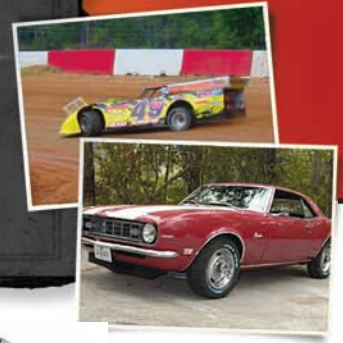
Replacement
Cartridge

- Fits GM Gen III / IV LS
- Twin Volute Design
- Balanced Coolant Flow to Both Sides of Engine
- Replaceable Cartridge
- Heavy Duty Bearing and Hub
- Clockwise Rotation
- Long and Short Version Available
- 1-3/4" inlet

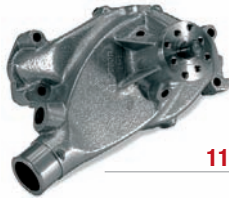


CHEVY stage 1 pumps

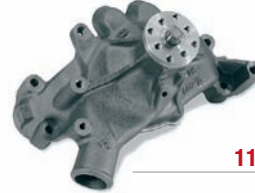
Stewart Stage 1 water pumps use brand new, original equipment castings that are machined to our exacting standards. Stage 1 pumps are compatible with stock lines and brackets but are internally modified for performance and reliability. Recommended for stock, OEM or mild performance applications.



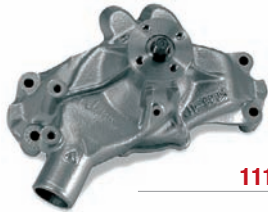
11104, 11105



11204



11113



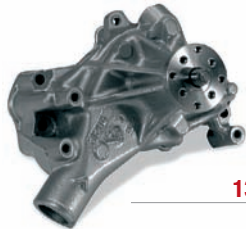
11123



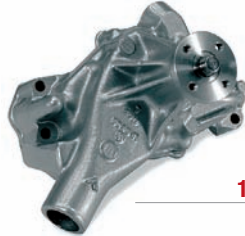
**12103
12203, 13103**



13403



13113



13123

PART NUMBER	TYPE	PASS CARS	CORVETTES	LT. TRUCKS	LENGTH	BEARING	SHAFT	ROTATION
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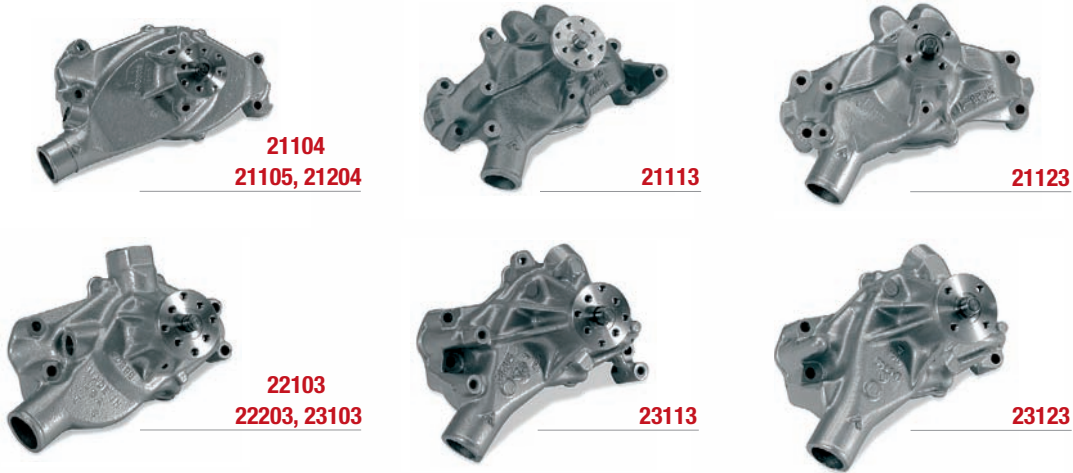
CHEVY — STAGE 1 PUMPS

11104	BB-Short	'65-'68	'65-'70	'68-'72	5.750"	3/4"	5/8"	CW
11105	BB-Short	'65-'68	'65-'70	'68-'72	5.750"	3/4"	5/8"	CCW
11113	BB-Long	'69-'86		'73-'86	7.287"	3/4"	5/8"	CW
11123	BB-Long	'87-UP		'87-UP	7.287"	3/4"	5/8"	CCW
11204	BB-Short		'71-'74		5.750"	3/4"	3/4"	CW
12103	SB-Short	'55-'68	'55-'70	'55-'72	5.625"	3/4"	5/8"	CW
12203	SB-Short	'55-'68	'55-'70	'55-'72	5.625"	3/4"	3/4"	CW
13103	SB-Short		'71-'82		5.795"	3/4"	3/4"	CW
13113	SB-Long	'69-'86			6.932"	3/4"	5/8"	CW
13123	SB-Long	'87-UP		'73-'86	6.932"	3/4"	5/8"	CCW
13403	SB-Short*		'84-'92	'87-'95	5.795"	3/4"	3/4"	CCW
13403HP	SB-Short*		'84-'92		5.795"	3/4"	3/4"	CCW

HP - Hand Polished | SB - Small Block | BB - Big Block | CW - Clockwise Rotation | CCW - Counter Clockwise Rotation
*OEM Aluminum Casting

CHEVY stage 2 pumps

Stewart Stage 2 water pumps are assembled using the exclusive 356-T6 heat treated aluminum casting. These pumps include several significant performance modifications, compared to Stage 1 pumps, for maximum performance. Recommended for stock, OEM or mild-moderate racing applications.



Stage 2, 3 and 4 Small Block Chevy water pumps MUST use our high flow modified thermostats; if a thermostat is to be used. Please see pg. 20

PART NUMBER	TYPE	PASS CARS	CORVETTES	LT. TRUCKS	LENGTH	BEARING	SHAFT	ROTATION
CHEVY — STAGE 2 PUMPS								
21104	BB-Short	'65-'68	'65-'70	'68-'72	5.750"	3/4"	5/8"	CW
21104HP	BB-Short	'65-'68	'65-'70	'68-'72	5.750"	3/4"	5/8"	CW
21105	BB-Short	'65-'68	'65-'70	'68-'72	5.750"	3/4"	5/8"	CCW
21105HP	BB-Short	'65-'68	'65-'70	'68-'72	5.750"	3/4"	5/8"	CCW
21113	BB-Long	'69-'86		'73-'86	7.287"	3/4"	5/8"	CW
21113HP	BB-Long	'69-'86		'73-'86	7.287"	3/4"	5/8"	CW
21123	BB-Long	'87-UP		'87-UP	7.287"	3/4"	5/8"	CCW
21123HP	BB-Long	'87-UP		'87-UP	7.287"	3/4"	5/8"	CCW
21204	BB-Short		'71-'74		5.750"	3/4"	3/4"	CW
22103	SB-Short	'55-'68	'55-'70	'55-'72	5.625"	3/4"	5/8"	CW
22103HP	SB-Short	'55-'68	'55-'70	'55-'72	5.625"	3/4"	5/8"	CW
22203	SB-Short	'55-'68	'55-'70	'55-'72	5.625"	3/4"	3/4"	CW
23103	SB-Short		'71-'82		5.795"	3/4"	3/4"	CW
23103HP	SB-Short		'71-'82		5.795"	3/4"	3/4"	CW
23113	SB-Long	'69-'86		'73-'86	6.932"	3/4"	5/8"	CW
23113HP	SB-Long	'69-'86		'73-'86	6.932"	3/4"	5/8"	CW
23123	SB-Long	'87-UP		'87-'95	6.932"	3/4"	5/8"	CCW
23123HP	SB-Long	'87-UP		'87-'95	6.932"	3/4"	5/8"	CCW

HP - Hand Polished | SB - Small Block | BB - Big Block | CW - Clockwise Rotation | CCW - Counter Clockwise Rotation

BMW FORD 46 PRO SERIES CHEVY FORD CHRYSLER MARINE

CHEVY stage 3 pumps

Stewart Stage 3 water pumps are assembled using the exclusive Stewart 356-T6 heat treated aluminum casting. These pumps feature a 1/2" billet steel fan hub that is strongly recommended for high RPM applications. Recommended for any racing application.



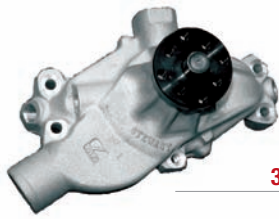
31203



32200
32203, 33103



33100



33163



33143*
33143CCW*

Stage 2, 3 and 4 Small Block Chevy water pumps MUST use our high flow modified thermostats; if a thermostat is to be used. Please see pg. 20

PART NUMBER	TYPE	APPLICATION	LENGTH	BEARING	SHAFT	SPECIAL
CHEVY — STAGE 3 PUMPS						
31203	BB-Short	Racing Application - Severe Duty	5.750"	3/4"	3/4"	
32200	SB-Short	Racing Application - Severe Duty	5.625"	3/4"	3/4"	ADJ
32203	SB-Short	Racing Application - Severe Duty	5.625"	3/4"	3/4"	
33100	SB-Short	Racing Application - Severe Duty	5.795"	3/4"	3/4"	ADJ
33103	SB-Short	Racing Application - Severe Duty	5.795"	3/4"	3/4"	
33163	SB-Short	Racing Application - Severe Duty	5.625"	3/4"	3/4"	NPT
33143*	SB-Short	Racing Series	5.795"	3/4"	3/4"	*
33143CCW*	SB-Short	Racing Series	5.795"	3/4"	3/4"	*

SB - Small Block | BB - Big Block | *AN outlets and additional inlets on top of pump.



CHEVY stage 4 pumps

Stewart Stage 4 water pumps are the cutting edge in performance water pump technology. This pump utilizes the Stewart Components DRV-8 impeller, which is fully CNC machined from 6061-T6 billet aluminum. Its special design flows up to 160 GPM, while consuming over 2 horsepower at 4,500 RPM - the ULTIMATE water pump for your racing application!



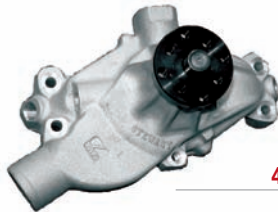
41203



42200
42203, 43103



43100



43163



43143*
43143CCW*

Stage 2, 3 and 4 Small Block Chevy water pumps MUST use our high flow modified thermostats; if a thermostat is to be used. Please see pg. 20

PART NUMBER	TYPE	APPLICATION	LENGTH	BEARING	SHAFT	SPECIAL
CHEVY — STAGE 4 PUMPS						
41203	BB-Short	Racing Application - Aluminum Only	5.750"	3/4"	3/4"	
42200	SB-Short	Racing Application - Aluminum Only	5.625"	3/4"	3/4"	ADJ
42203	SB-Short	Racing Application - Aluminum Only	5.625"	3/4"	3/4"	
43100	SB-Short	Racing Application - Aluminum Only	5.795"	3/4"	3/4"	ADJ
43103	SB-Short	Racing Application - Aluminum Only	5.795"	3/4"	3/4"	
43163	SB-Short	Racing Application - Aluminum Only	5.625"	3/4"	3/4"	NPT
43143*	SB-Short	Racing Series	5.795"	3/4"	3/4"	*
43143CCW*	SB-Short	Racing Series	5.795"	3/4"	3/4"	*

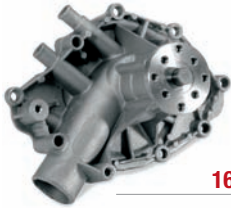
SB - Small Block | BB - Big Block | *AN outlets and additional inlets on top of pump.



BMW
FORD 4.6
PRO SERIES
CHEVY
FORD
CHRYSLER
MARINE

FORD stage 1 pumps

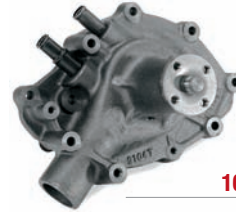
Stewart Stage 1 pumps use brand new, original equipment castings that are machined to our exacting standards. Stage 1 pumps are compatible with stock lines and brackets but are internally modified for performance and reliability. Recommended for stock, OEM or mild performance applications.



16103



16113



16123



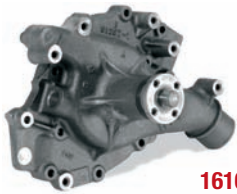
16133



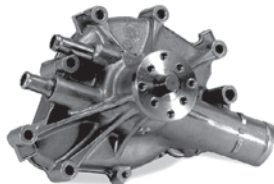
16143



16153



16163



16173



16183

PART NUMBER	TYPE	DESCRIPTION	YEAR	LENGTH	BEARING	SHAFT	SPECIAL
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FORD — STAGE 1 PUMPS

16103	221-351W	Alum w/o Rear Cover	'62-'67	5.090"	5/8"	5/8"	PSI
16113	221-351W	Iron w/Rear Cover	'70-'78	5.700"	3/4"	5/8"	DSI
16123	221-351W	Iron w/Rear Cover	'62-'67	5.700"	3/4"	5/8"	PSI
16133	221-351W		'79-'85	5.734"	3/4"	5/8"	DSI, CW
16143	351C, 351M, 400M		'70-UP	5.700"	3/4"	3/4"	
16153	330-428 FE		'65-'71	7.578"	3/4"	3/4"	
16163	429-460		'70-UP	5.484"	3/4"	3/4"	
16173	221-351W		'86-'93	5.734"	3/4"	5/8"	DSI, CCW
16173HP	221-351W		'86-'93	5.734"	3/4"	5/8"	DSI, CCW
16183	221-351W		'94-'95	4.070"	3/4"	5/8"	DSI, CCW
16183HP	221-351W		'94-'95	4.070"	3/4"	5/8"	DSI, CCW

HP - Hand Polished | CW - Clockwise Rotation | CCW - Counter Clockwise Rotation | DSI - Driver Side Inlet | PSI - Passenger Side Inlet

FORD

stage 2, 3, & 4 pumps



26113



36113



46113

PART NUMBER	ENGINE TYPE	PASS CARS	LT. TRUCKS	LENGTH	BEARING	SHAFT	SPECIAL
FORD — STAGE 2 PUMPS							
26113	221-351W	'70-'78		5.700"	3/4"	3/4"	
FORD — STAGE 3 PUMPS							
36113*	221-351W	'70-'78		5.700"	3/4"	3/4"	
36114**	221-351W	'70-'78		5.450"	3/4"	3/4"	
FORD — STAGE 4 PUMPS							
46113*	221-351W	'70-'78		5.700"	3/4"	3/4"	
46114**	221-351W	'70-'78		5.450"	3/4"	3/4"	

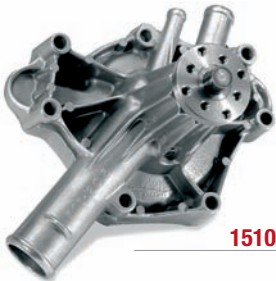
*SVO Block or Cleveland Block without Heater Core Lines

** Shorter Hub Height for Yates Belt Drive



BMW
FORD 4.6
PRO SERIES
CHEVY
FORD
CHRYSLER
MARINE

CHRYSLER stage 1 pumps



15103



15113

PART NUMBER	ENGINE TYPE	PASS CARS	LT. TRUCKS	LENGTH	BEARING	SHAFT	SPECIAL
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CHRYSLER — STAGE 1 PUMPS

15103	Small Block	'70-'89 "LA"		5.547"	3/4"	5/8"	
15113	Small Block	'70-'89 "LA"		5.547"	3/4"	3/4"	

MARINE stage 1 pumps



11106



13106

PART NUMBER	TYPE	APPLICATION	LENGTH	BEARING	SHAFT
-------------	------	-------------	--------	---------	-------

MARINE — STAGE 1 PUMPS

11106*	Big Block	Mercruiser Marine and Most Others	5.750"	3/4"	5/8"
13106*	Small Block	Mercruiser Marine and Most Others	5.625"	3/4"	5/8"

* Bi-directional with bronze impeller, salt-water/fresh-water compatible seal and stainless steel back cover

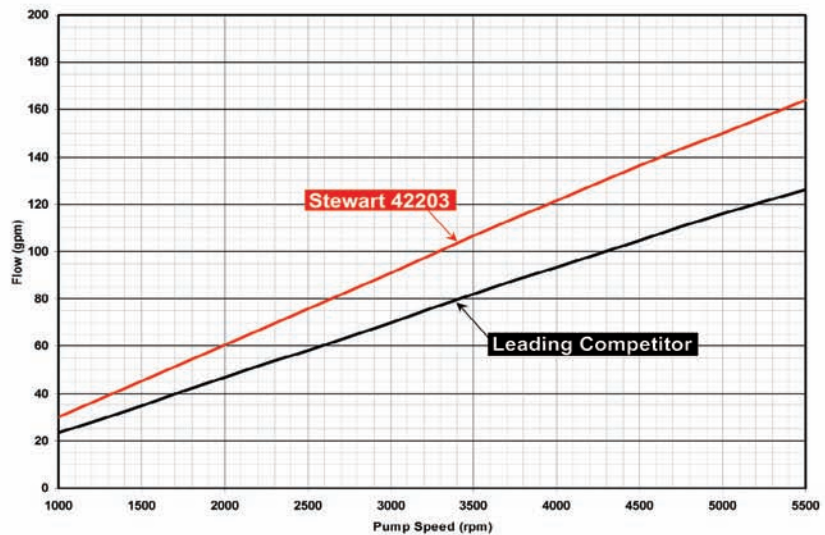
STAGE 4 flow charts

STEWART STAGE 4 VS. LEADING COMPETITOR

Flow vs. Pump Speed

At 5000 RPM, the leading competitor's pump has a flow rate of 115 GPM.

The Stewart pump only requires 3800 RPM to reach the same flow rate.

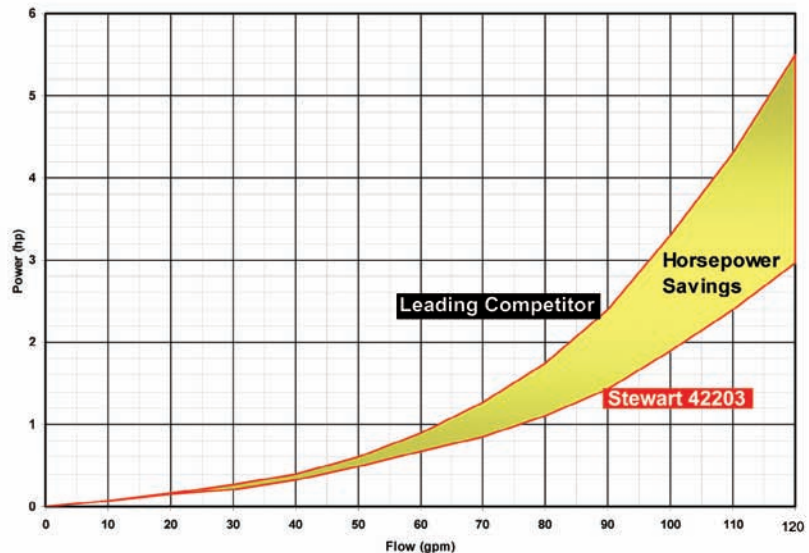


SAME FLOW, LESS PUMP SPEED = MORE HORSEPOWER

Horsepower vs. Flow

At 5000 RPM, the competitor's pump draws 5 HP from the engine, whereas the Stewart pump only draws 2.7 HP.

Proven industry leaders!



ELECTRIC WATER PUMPS

advanced cooling components



This lightweight, robust pump provides features and benefits not currently available in any other electric water pump. Stewart's Electric Water Pump has a 10,000+ hour lifespan and includes universal remote mounting with single speed flow up to 55 GPM. These pumps are available hand-polished, or anodized in red or black, and are set to revolutionize the performance racing industry.

FEATURES:

- Computer Controlled, Brushless Motor
- High Efficiency, Flow-Through In-Line Design
- Liquid Cooled Motor
- Compact, Lightweight Design
- Comes in Anodized Black or Red

BENEFITS:

- Decreased Energy Draw
- Drive Mechanism Independent of Engine RPM
- Cools Engine after Shutdown
- Easy Remote Mounting - No Weight Penalty
- Can be used with 12 and 16 Volt Applications
- Weight: 5 lbs.
- Dimensions: 6.3" long x 4.25" wide

INLINE BOOSTER PUMP:

Stewart's inline booster pump is intended for vehicles that experience overheating problems in low RPM situations. Since mechanical water pump speed is directly linked to engine speed, overheating becomes a major problem in situations such as parades, cruises, and stop-and-go traffic. The inline booster pump solves this problem by working in conjunction with the mechanical pump to create constant added flow to the engine block; the pump has been proven to increase flow by more than 300% at idle!

These pumps are currently being used by NHRA Pro Stock Champion Warren Johnson and Kurt Johnson by Dart Industries, and Jim Yates — as well as road racing American Lemans and SCCA World Challenge.



PART NUMBER	STYLE	SIZE
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ELECTRIC WATER PUMP

E558A-BK	Black	1 3/4"
E558A-P	Hand Polished	1 3/4"
E558A-R	Red	1 3/4"

Note: Electric pumps utilizing special sized AN Fitting inlets and outlets are only available in red.

AN FITTINGS

5505AN*	Inlet	AN 20
5506AN*	Outlet	AN 16, 20

* For use with Stewart electric water pumps, must be specified with purchase of pump.

WIRING HARNESS - For remote controller mounting

WH-02	Wiring Harness	2 ft. Length
WH-04	Wiring Harness	4 ft. Length
WH-06	Wiring Harness	6 ft. Length
WH-08	Wiring Harness	8 ft. Length
WH-10	Wiring Harness	10 ft. Length

RELAY KIT - Reduces power draw to switch on long wire lengths

RLY351	Relay Kit
--------	-----------

ELECTRIC WATER PUMPS

advanced cooling components

New For
2007!

EMP/Stewart Components introduces the next generation of electric water pumps!



Utilizing the same proven, patented brushless motor as the E558, this next generation pump offers super strong, light, engineered polymer resin inlet and outlets that are available in 1-3/4" or 1-1/4" for smaller displacement engines. It uses the o-rings to seal for reliability. With a 10,000 hour rating it is unmatched by any other electric water pump.

Whether you are looking for additional water flow to cool your street rod or are racing in the 24 Hours of Lemans, you can count on EMP/Stewart Components products!

FEATURES:

- Engineered Polymer Inlet and Outlets, Available in Red or Black
- Available in 1-3/4" or 1-1/4" Slip On Fittings
- Computer Controlled, Brushless Motor
- Liquid Cooled Motor
- Patented Flow-Through Design
- Weight: 4 lbs., Including Controller and Bracket
- Dimensions: 7" long x 4-1/2" wide

BENEFITS:

- Decreased Energy Draw
- Can be used with 12 and 16 Volt Applications
- Drive Mechanism Independent of Engine RPM
- No Engine or Thermostat Modifications Required
- Ease of Integration
- Extremely Quiet
- Corrosion Resistant

PART NUMBER	STYLE	SIZE
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ELECTRIC WATER PUMP

E389A-R14	Red	1-1/4"
E389A-BK14	Black	1-1/4"
E389A-R34	Red	1-3/4"
E389A-BK34	Black	1-3/4"

Slip on and AN Fittings avail. in billet aluminum, special order only.

WIRING HARNESS - For remote controller mounting

WH-02	Wiring Harness	2 ft. Length
WH-04	Wiring Harness	4 ft. Length
WH-06	Wiring Harness	6 ft. Length
WH-08	Wiring Harness	8 ft. Length
WH-10	Wiring Harness	10 ft. Length

RELAY KIT - Reduces power draw to switch on long wire lengths

RLY351	Relay Kit
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Part# WH-02, 04, 06, 08, & 10



Part# RLY351

ELECTRIC WATER PUMPS

advanced cooling components

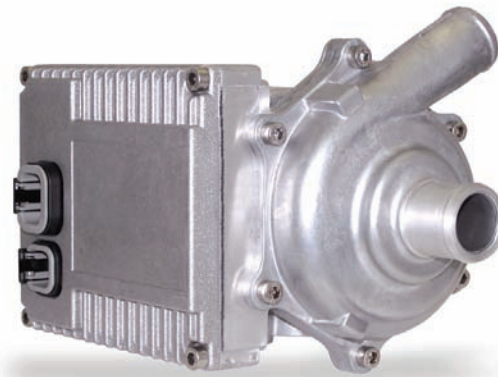
**New For
2007!**

*EMP/Stewart Components introduces a
universal electric water pump!*

Introducing our latest Advanced Product; our new universal electric water pump. SVT owners take note!

Stemming from our Ford GT electric intercooler pump, this new design will wake up your air-to-water intercooler. It will provide a much needed boost in water flow, offering increased heat rejection and lowering intake temps.

With 25 gallons per minute @ 12 amps, it offers twice the flow from the factory electric pump. With 1" inlet and outlets, this pump can be used for small displacement engines or when less water flow is needed, as in alcohol drag cars.



FEATURES:

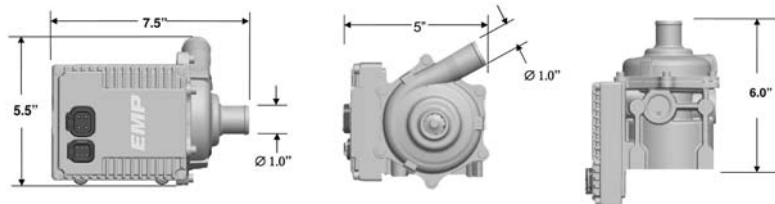
- All Aluminum Housing
- Built in Computer Controller
- 10,000 Hour Brushless Motor
- Deutsch Electrical Connectors
- Weight: 6.5 lbs
- 1" Inlet and Outlet

BENEFITS:

- High Efficiency
- Can be used with 12 or 16 Volt Systems
- No Relay Needed
- Extremely Quiet
- Ease of Integration

APPLICATIONS:

- Intercooler Cooling
- Turbo Charger Cooling
- For Small Displacement Engines



PART NUMBER

STYLE

SIZE

ELECTRIC WATER PUMP

E2512A

Aluminum

1"



ULTRA PERFORMANCE - MILITARY GRADE

ELECTRIC FAN

advanced cooling components



EMP/Stewart Components introduces the most powerful electric fan available for the automotive aftermarket!

This fully sealed and water tight 11" brushless, sensorless DC motor fan has seen usage in the Military, Construction Equipment and Commercial Trucking applications. Built with the highest engineering standards for submersion and SAE1455 for vibration, it may be the last electric fan you will ever buy.

Perfect for Off Road Trucks, WRC Rally Cars, Rock Crawlers, Desert Buggies, Street Rods and Hot Rods.



PART NUMBER

STYLE

SIZE

ELECTRIC FAN

STE50037	Standard Gray	11"
STE50037P	Polished Aluminum	11"
STE50037B	Powder Coated Black	11"

FEATURES:

- Brushless Motor - No Carbon Brushes to Wear Out
- Fully Sealed Motor - Keeps all Water, Dirt and Debris Out of Motor
- Aluminum Fan Housing - For Superior Strength and Provides a Heat Sink to Cool Electric Motor
- Deutsch Electrical Connectors
- Pusher/Puller Configurations
- Programmable for Fan Reversal - can be Programmed to Blow in Reverse to Clean Out Radiator and A/C Condenser Cores
- Can be used in 12 or 16 Volt Charging Systems
- No Relay Required
- Uses up to 25 Amps
- Can be "Soft Started" to Come up to Speed
- Dimensions: 12" wide x 3.1" deep
- Weight 6.5 lbs.



ADVANCED COOLING COMPONENTS

ACCESSORIES

TECH TIPS

ACCESSORIES

cooling system extras

HIGH PERFORMANCE THERMOSTATS

PART NUMBER	STYLE	APPLICATION
300	160° F - Most Domestic Applications, Modified	2-1/8" Diameter (small)
301	180° F - Most Domestic Applications, Modified	2-1/8" Diameter (small)
302	195° F - Most Domestic Applications, Modified	2-1/8" Diameter (small)
304	160° F - Non-Modified	2-1/2" Diameter (large)
305	180° F - Non-Modified	2-1/2" Diameter (large)
306	195° F - Non-Modified	2-1/2" Diameter (large)
307	160° F - Most Domestic Applications, Non-Modified	2-1/8" Diameter (small)
308	160° F - Most Domestic Applications, Non-Modified	2-1/8" Diameter (small)
309	160° F - Most Domestic Applications, Non-Modified	2-1/8" Diameter (small)
400	Chevy V8 Thermostat Housing Gasket	



Part# 300, 301, 302



Part# 307, 308, 309

Manufactured by Robert Shaw and modified by Stewart, these custom thermostats feature a balanced sleeve design and are constructed for high flow, high RPM applications. Strongly recommended for any performance application - must be used with Stewart Stage 2, 3 or 4 water pumps. Our Stage 2,3 and 4 Small Block Chevy water pumps do not have the factory bypass hole, therefore we put three 3/16" hole in our modified high flow thermostats, this moves the bypass to thermostat. This also allows air to escape on initial system fill making bleeding the cooling system much easier.

BOLT KITS - Complete Kits for Mounting Water Pumps

PART NUMBER	STYLE	(ONLY FIT CHEVROLET STYLE WATER PUMPS)
101	Chevy Small Block, Short	
102	Chevy Small Block, Long	
103	Chevy Big Block, Short - Cast Iron	
104	Chevy Big Block, Short - Aluminum	
105	Chevy Big Block, Long	



Each kit includes 12 point, grade 8 cadmium-plated bolts and 4 extra thick, "super" chromemoly washers. **These bolt kits only fit Chevrolet style water pumps.**

ACCESSORIES

PART NUMBER	STYLE
S15H624	1/2" Pipe Plug w/Thread Sealant Applied
S15H649	3/4" Pipe Plug w/Thread Sealant Applied
SEAL	Permatex® Gasket Maker
LOCKER	Permatex® Thread Locker
SPACER	Pulley Spacers - 3 Pack



SEAL



LOCKER



SPACER

TECH TIPS

cooling system guidelines

The information contained in this section is based on Stewart's 25+ years of experience in the high performance cooling system industry. While few truths are absolute, the following guidelines apply to virtually any application and should be followed as closely as possible, in order to maximize the performance and efficiency of your cooling system. If you have any further questions about your Stewart water pump, or cooling system, please contact a Stewart Components rep.

Tech Tip #1 - Water Pumps & Pulleys

In order to increase your cooling system's performance you must maximize BOTH the water flow AND air flow.

Water Pumps

- There are significant differences between a stock or OEM water pump, and Stewart Components water pumps. Most stock or OEM pumps are built to meet standard performance requirements at relatively low RPM. Stewart pumps are designed and manufactured specifically for high performance applications.
- Every pump is designed to exacting tolerances for reliable, long-term performance that meets the requirements for your application.
- In addition, all Stewart high-flow water pumps are designed to deliver maximum flow with minimum power consumption. Stewart high-flow water pumps deliver up to 180 GPM (gallons per minute) of coolant flow (at 8,000 RPM), yet can consume just 2.26 horsepower (at 4,000 RPM)!

Pulleys

- Using the proper pulleys and drive system is critical to matching water pump performance to your specific application. RACE applications require a maximum water pump speed of 6,000-7,000 RPM. For STREET applications, the water pump speed must at least match crank shaft RPM, to a maximum recommended 25% faster than crankshaft speed.
- Stewart Components does NOT recommend the use of underdrive pulleys on any application. Stewart high-flow water pumps consume minimal horsepower, so the actual savings in parasitic loss through the use of underdrive pulleys is minimal. In addition, in a properly designed cooling system, flow and efficiency are designed to operate at a given speed. In years of testing, Stewart has consistently proven that the engine will lose more horsepower due to higher operating temperatures than any possible gain from underdrive pulleys.

Tech Tip #2 - Radiator Caps

Radiator Caps

- In a cooling system, higher pressure equates to a higher boiling point for the coolant. Higher coolant pressures also transfer heat from the cylinder heads more efficiently. We recommend using a radiator cap with the highest pressure rating the radiator is designed to accept. In general, performance radiators will accept 22-24 PSI, and professional racing radiators will accept 29-31 PSI.
- The coolant will typically only build to 16-18 PSI, due to expansion up to 200° F. However, if the engine does overheat due to external factors, the pressure inside the cooling system could reach as high as 28 PSI. Once the radiator cap has opened and vented coolant, the engine will not cool down until it has been turned off. The radiator cap is a "safety valve"; always use the highest pressure cap the radiator will tolerate. If you are unsure of the pressure rating for your radiator, check with the manufacturer for the maximum recommended operating pressure.

Radiator Cap Location

- The radiator cap should always be located at the highest point of the cooling system, and on the low pressure side (after the radiator core). Cross flow radiators mounted higher than the engine are ideal because the cap is on the tank that is connected to the water pump inlet. This configuration offers 3 advantages:
 1. The cap is at the highest point of the system, allowing any air to migrate to the area just below the cap. In the event the cap vents due to excessive pressure, the air will escape first.
 2. This area has the lowest velocity within the system, allowing air to separate from coolant even at high engine RPM.
 3. The cap is located on the low pressure (suction) side of the system, so it is unaffected by the generated pressure.
- For cooling systems NOT using a cross flow radiator, mounted higher than the engine, you must use a surge tank. A surge tank is typically a 1 quart tank mounted at the highest point of the system, with the radiator cap on top. The bottom of the tank is connected to the inlet side of the water pump with a 1/2" or 3/4" line. A 1/4" to 3/8" "bleed" line from the side of the surge tank is connected to the highest point of the low pressure side of the radiator. The bleed line allows some circulation through the tank while the engine is running. The surge tank is also large enough to allow the air to separate as the coolant flows through it. Air in the system will then migrate to the area just below the radiator cap, so that it will be forced out first if system pressure exceeds the radiator cap's rating.
- In street car applications, an upright radiator (top and bottom tanks, with the cap on the top tank) represents a compromise that will work, as long as the car is not operated at sustained high RPM, like those seen in racing.
- Any aftermarket thermostat housing that mounts the radiator cap directly above the thermostat location, or that mounts the radiator cap in the top coolant hose, is NOT recommended. Both housing styles are poorly designed, and will push coolant out of the cap at high RPM.

TECH TIPS

cooling system guidelines

Tech Tip #3 - Thermostats & Restrictors

Thermostats & Restrictors

- We strongly recommend NEVER using a restrictor; they decrease coolant flow and ultimately inhibit cooling.
- For applications requiring a thermostat to keep the engine at operating temperature, we recommend using a Stewart/Robert Shaw high flow thermostat. This thermostat does not restrict flow when open. The Stewart/Robert Shaw thermostat enhances the performance of the cooling system, using any style of water pump. Stewart Components recommends using this thermostat with Stage 1 pumps. Stage 2, 3 & 4 pumps require a Stewart modified Robert Shaw thermostat, as these pumps have no internal bypasses.
- Stewart modifies its thermostat by machining three 3/16" bypass holes directly in the poppet valve, which allows some coolant to bypass the thermostat even when closed. This modification does result in the engine taking slightly longer to reach operating temperature in cold weather, but it allows the thermostat to function properly when using a high flow water pump at high engine RPM.
- A common misconception is that if coolant flows too quickly through the system, that it will not have time to cool properly. However, the cooling system is a closed loop, so if you are keeping the coolant in the radiator longer to allow it to cool, you are also allowing it to stay in the engine longer, which increases coolant temperatures. Coolant in the engine will actually boil away from critical heat areas within the cooling system if not forced through the cooling system at a sufficiently high velocity. This situation is a common cause of so-called "hot spots", which can lead to failures.
- Years ago, cars used low pressure radiator caps with upright-style radiators. At high RPM, the water pump pressure would over come the radiator cap's rating and force coolant out, resulting in an overheated engine. Many enthusiasts mistakenly believed that these situations were caused because the coolant was flowing through the radiator so quickly, that it did not have time to cool. Using restrictors or slowing water pump speed prevented the coolant from being forced out, and allowed the engine to run cooler. However, cars built in the past thirty years have used cross flow radiators that position the radiator cap on the low pressure (suction) side of the system. This type of system does not subject the radiator cap to pressure from the water pump, so it benefits from maximizing coolant flow, not restricting it.

Tech Tip #4 - Coolant, Fans, and Hoses

Coolant

- **UNEQUIVOCALLY, WATER IS THE BEST COOLANT!** We recommend using a corrosion inhibitor comparable to Prestone Super Anti-Rust when using pure water. If freezing is a concern, use the minimum amount of antifreeze required for your climate. Stewart Components has extensively tested all of the popular "magic" cooling system additives, and found that none work better than water. In fact, some additives have been found to swell the water pumps seals and contribute to pump failures.
- In static cooling situations, such as quenching metal during heat treating, softening agents (sometimes referred to as water wetting agents) will allow the water to cool the quenched part more evenly and quickly. The part will cool quicker, and the water will heat up faster. However, an automotive cooling system is not static. In fact, the velocities inside a cooling system are comparable to a fire hose forcing coolant against the walls of the engine's water jackets. If the softening agents actually aided in cooling the engine, the temperature of the coolant as it exited the engine would have to be higher because it would have absorbed more heat.

Fans

- Electric fans have improved tremendously in recent years, in both quality and reliability. Electric fans now outperform mechanical fans in nearly every application, except towing and dirt oval track racing.
- When using a mechanical fan, a properly designed shroud must be used. Most mechanical fans are not designed for high RPM use — they can have serious vibration problems, due to air turbulence, when run over 6,500 RPM. This is a turbulence problem, not a balance problem, and will destroy the water pump and components in front of it. The large fans preferred by dirt oval track racers can consume up to 18 horsepower at 6,500 RPM. Do NOT run a mechanical fan that is any larger than required for the application.
- Flex fans are a poor design for performance applications. They move less air at higher RPM, and only consume a fraction less power than standard fixed pitch fans.
- Clutch-style fans are inconsistent and we do not recommend their use for any application.

Hoses

- Standard full-size hoses should be used to ensure maximum flow. Smaller "AN style" hoses decrease flow and hence inhibit proper cooling.

TECH TIPS

cooling system guidelines

Tech Tip #5 - Radiators & External Plumbing

Radiators

- Thicker radiators do have slightly more airflow resistance than thinner radiators but the difference is minimal. A 4" radiator has only approximately 10% more airflow resistance than a 2" radiator.
- In past years, hot rodders and racers would sometimes install a thicker radiator and actually notice decreased cooling. They erroneously came to the conclusion that the air could not flow adequately through the thick radiator, and therefore became fully heat-saturated before exiting the rear of the radiator core. The actual explanation for the decreased cooling was not the air flow, but the coolant flow. The older radiators used the narrow tube design with larger cross section. Coolant must flow through a radiator tube at enough velocity to create turbulence.
- The turbulence allows the water in the center of the tube to be forced against the outside of the tube, which allows for better thermal transfer between the coolant and the tube surface. The coolant velocity decreases, and subsequently its ability to create the required turbulence, increases in direct relation to the increase in thickness. If the thickness of the core is doubled, the coolant velocity is halved. Modern radiators, using wide tubes and less cross section area, require less velocity to achieve optimum thermal transfer. The older radiators benefited from baffling inside the tanks and forcing the coolant through a serpentine configuration. This increased velocity and thus the required turbulence was restored.
- Radiators with a higher number of fins will cool better than a comparable radiator with less fins, assuming it is clean. However, a higher fin count is very difficult to keep clean. Determining the best compromise depends on the actual conditions of operation.
- Double pass radiators require 8x more pressure to flow the same volume of coolant through them, as compared to a single pass radiator. Triple pass radiators require 27x more pressure to maintain the same volume. Automotive water pumps are a centrifugal design, not positive displacement, so with a double pass radiator, the pressure is doubled and flow is reduced by approximately 33%. Modern radiator designs, using wide/thin cross sections tubes, seldom benefit from multiple pass configurations. The decrease in flow caused by multiple passes offsets any benefits of a high-flow water pump.
- Cross flow radiators are superior to upright radiators because the radiator cap is positioned on the low pressure (suction) side of the system. This prevents the pressure created by a high-flow water pump from forcing coolant past the radiator cap at high RPM. As mentioned in the radiator cap section, an upright radiator should be equipped with the highest pressure radiator cap recommended by the manufacturer. The system will still force coolant past the cap at sustained high RPM.

External Plumbing

- Street-driven vehicles seldom need auxiliary plumbing or coolant lines. SBC race engines with aluminum cylinder heads usually require extensive external plumbing to address two design problems:
 1. Aluminum heads have much smaller water jackets than cast-iron heads because the external dimensions are similar, but the ports are usually larger, the deck is thicker, and the material near the rocker stands is thicker, all leaving less area in the water jackets.
 2. The siamese center exhaust ports are a design compromise that presents additional problems when aluminum heads are used. The area near the center exhaust valves is thicker, thus allowing less surface area for cooling.
- We recommend installing a pair of AN10 lines that connect the rear of the aluminum cylinder heads to the thermostat housing crossover in the front. This step will help offset the smaller water jackets. A pair of AN10 lines connecting the pressure side of the water pump with the area in the center of the cylinder head (just below the exhaust ports) will offset the lack of surface area due to the extra material.