



SECTION 10: RACING PRODUCTS

GET THE LATEST S&S RACING COMPONENT INFORMATION

This history of S&S Cycle is anchored in motorcycle racing, beginning with our founder George Smith and his legendary motorcycle, Tramp. For those drawn by the same pursuits, whether for the drag strip, the Salt Flats, the tracks, or the streets, S&S Cycle has the products and expertise needed to reach the top of the podium.

Due to the specialized nature of much of our racing product line, we encourage you to visit our website www.sscycle.com/racing-catalog for details on our offerings. Further information can be obtained by calling our dedicated professionals at 866-244-2673

DEALER SALES ONLY!

S&S does not sell technical products directly to retail consumers, and race engine components certainly fall into that category. S&S racing components are only available through S&S Dealers. S&S Racing Products are available through any authorized dealer, but here are some S&S dealers who specialize in racing: Karling Racing Engines, Kendall Johnson Customs, Sachs Race Bikes, Lozano Brothers Porting, Star Racing. Chris Rivas V-Twin Specialties, Mutant Motors By Wolf, 2 Boss Performance, LLC., and Gregg's Machine Service.

ARE YOU FAST ENOUGH? S&S® CYCLE INVITES YOU TO JOIN THE CLUB

HERE'S HOW YOU CAN JOIN SOME FAST COMPANY:

- First, go fast — after breaking in your engine according to the manufacturer's instructions.
- Next, provide the documentation listed below.
- Then, toss everything in an envelope and send it to S&S®.
- We'll send you an official 9- 10- or 11-Second club patch for your leathers, a certificate authorizing braggin' rights, and a free club t-shirt.

HERE'S WHAT WE NEED FROM YOU:

1. Proof that your street-ridden motorcycle (D.O.T. tires, full charging system, no wheelie bars or air shifts) equipped with S&S performance products, has turned an 11.99 or quicker quarter-mile time. We'll need an official timing slip from a sanctioned dragstrip dated after June 1, 2005 and signed by the timekeeper. (A good photocopy will do.) We don't care if you trailer the bike to the track, so long as it sees more action on the street than off. The registered owner must ride the motorcycle for the qualification pass.
2. A photograph of yourself and the motorcycle. Action shots are preferred if sharp and clear.
3. Join online: www.sscycle.com/go-fast-showcase/seconds-club

PLEASE NOTE

Tell us a little about yourself and your motorcycle. Include the model and year, a list of all engine and frame modifications, the type of exhaust, and tire brand and model. Be sure to mention all S&S products used!

Submitted materials may be used for promotional purposes.

Members will receive a certificate, club patch, and t-shirt, but no payment or other considerations.

JOIN ONLINE:

WWW.SSCYCLE.COM/GO-FAST-SHOWCASE/SECONDS-CLUB/



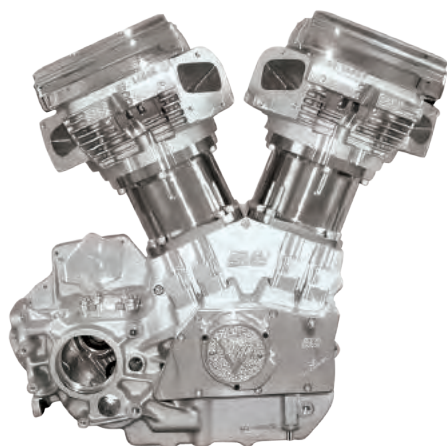
Please allow 4 weeks for processing.

PERFORMANCE ENGINES



S&S® PRO STOCK DOWNDRAFT BILLET ENGINE

- 60" displacement, 60° v-twin pushrod configuration
- Billet crankcases with integral transmission housing
- Billet steel Pro Stock style flywheel assembly
- Billet aluminum rods with 1.500" crankpin
- Billet Pro Stock cylinder heads
- S&S Iron Pro Stock cylinders
- Pro Stock VFI manifolds, throttle bodies
- Six-speed automatic transmission
- Turn-key includes ignition system, transmission, output sprocket, etc. assembled



S&S 160" CAST COMPLETE PRO STOCK ENGINES

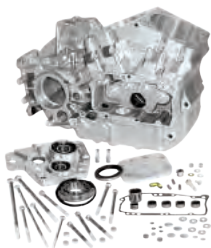
- S&S cast square-port Pro Stock heads with 2.450" intake valves and 1.900" exhaust valves and S&S .800" lift valve springs
- S&S 4.800" bore finless 4142 chromoly steel cylinders
- "Pork chop" style S&S Pro Stock press together flywheels with a relatively short 4.375" stroke — includes 8.500" long S&S billet aluminum connecting rods
- The transmission cavity will accept a stock or aftermarket 1991-2003 style 5-speed transmission for a Harley-Davidson® Sportster® (a special access door is supplied)



S&S T126 4 3/8" BORE ENGINES FOR 1999-'06 BIG TWINS

- 4.375" bore x 4.1875" stroke
- Assembled
- Natural, Silver, Wrinkle Black, Gloss Black and Polished
- Available with Super D Carb or no induction (order separately)
- S&S gear drive oil pump with polished cover
- 640 cam
- High flow B2 heads with 2.2" intake and 1.8" exhaust valves
- Chrome rocker covers
- .250" taller than stock Twin Cam 88®

CRANKCASES



S&S® 45° CAST PRO STOCK CRANKCASES

- Can accommodate cylinder spigot bores of up to 5.335"
- Cylinder deck heights are available as high as 1.750" taller than stock
- Cam chest is a modified 1986-'90 four-speed style and is offset .850" to allow larger bore sizes
- Requires a special S&S Pro Stock flywheel assembly which features a big twin style sprocket shaft, .850" longer than stock pinion shaft, and special big twin width connecting rods
- Must be used with special race frame



S&S SA CRANKCASE FOR SPORTSTER® AND BUELL® MODELS

- Can be ordered with spigot bore diameters from stock 3.680" to 4.630", and with crankcase deck heights up to 1.000" taller than stock
- Cam chest is offset .500" to allow for the larger bore sizes
- Cam chest may be machined for either 1986-'90 (four-speed) or 1991-'99 (five-speed) cam geometry



S&S SA BIG BORE CRANKCASES FOR 1999-'06 BIG TWIN "A" ENGINES

- Can be ordered for 4.375" to 4.800" bore engines
- Cam chest on the right side has been offset .375" — requires a special .375" longer pinion shaft
- Deck height can be machined to the stock height of 6.000" or as high as 7.125" from the crank center line — allows for more material and greater strength between the cylinder spigot bores
- Optional stock cam geometry — allows the engine builder to select from a wide variety of readily available cams
- Optional special rotated S&S cam geometry — improves the pushrod angles for more direct application of force to the rocker arms, hence more accurate valve actuation. (Cases machined for this option require specially ground cams. These cams are not currently available from S&S and must be special ordered from the cam manufacturer.



S&S SA ALTERNATOR STYLE CRANKCASE FOR 1984-'99 BIG TWIN ENGINES

- Can be ordered with spigot bore diameters from stock 3.680" to 4.630", and with crankcase deck heights up to 1.000" taller than stock
- Cam chest is offset .250" to allow for these larger bore sizes

FLYWHEELS

FOR CAST PRO STOCK ENGINES, FOR 1984-'12 BIG ENGINES, & SPORTSTER® RACING APPLICATIONS



CONNECTING RODS FOR RACING FLYWHEEL ASSEMBLIES

PRO-STOCK BILLET ALUMINUM, BIG TWIN SUPREME CONNECTING RODS, SPORTSTER® SUPREME CONNECTING RODS, & FORGED STEEL CONNECTING RODS



CONNECTING ROD PARTS

- Rod Bearing Assembly For S&S Connecting Rods – 1.500"
- Rod Bearing Cage Set For Big Twin Engines – Alloy
- Rod Bearing Set For Big Twin Engines – Alloy
- Sprocket Shaft and Crankpin* Nut For S&S Shafts – 1.250"
- S&S Crankpin Nut for 1.500" Crankpins For Sportster Models
- Sprocket Shaft Nut For 1.500" Diameter Shafts
- Bearing Cage Set for Sportster Engines Alloy 1.250" and 1.500"
- Bearing Set for Alloy Cages For Sportster Models – 1.250" & 1.500"
- Flywheel Thrust Washers



CRANKPINS

PRO STOCK PRESS-IN, BIG TWIN CRANKPIN – PRESS-IN WELD-IN, BIG TWIN CRANKPIN – TAPERED, SPORTSTER® PRESS-IN WELD-IN, SPORTSTER® TAPERED



SPROCKET & PINION SHAFTS AND RELATED PARTS

SPROCKET: PRESS-IN

- Pro-Stock
- 1954–'64
- 1970–UP

SPROCKET: TAPERED

S&S V-SERIES SA CASES

- Tapered & Press-In

PINION SHAFTS:

- Cast Pro-Stock
- Delkron 4-Cam
- S&S® T-Series SA Cases
- S&S® V-Series SA Cases
- S&S® Sportster® SA Cases



Milwaukee
Eight
2017

Twin Cam
96/103/110
2007-2017

Twin Cam
88
1999-2006

Evolution®
1984-1999

Sportster®
& Buell®
1966-2017

Street Rod™
2014-2017

Vintage
Engines
1926-1984

X-Wedge®
2007-2015

Indian® &
Victory®
Models

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& Promo
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RACING CAMSHAFTS

FOR CAST PRO STOCK ENGINES



S&S® PRO STOCK CAMSHAFT SPECIFICATIONS

Valve Timing Open/Close		Valve Duration		Valve Lift 1.625:1 Rocker Ratio	Centerline		Lift @ TDC	
Intake	Exhaust	Intake	Exhaust		Intake	Exhaust	Intake	Exhaust
Adjustable	Adjustable	279°	298°	.800"	Adjustable	Adjustable	Adjustable	Adjustable

BILLET GEARCOVERS FOR SPORTSTER® AND BUELL® MODELS

- Available for 1986-'90 (four-speed) and 1991-'99 (five-speed) cam chests
- One gearcover features needle bearings instead of bushings for the outboard ends of the camshafts and one style uses stock style bushings
- Not recommended for engines with stock 1986-'90 crankcases as they have no provision for the four speed style crankcase breather.
- Hardware and special S&S gearcover gasket included



CYLINDERS & PISTONS

S&S FINLESS STEEL

- Machined from 4142 chromoly steel — 180,000 psi approx. tensile strength — a higher strength to weight ratio than that of competitive cast iron racing cylinders
- Replaceable sleeve made of ductile iron (superior wear resistance) allows worn or damaged cylinders to be rebuilt and reused

PRO-STOCK PISTONS

- 4.800" & 4.600" Bore
- All Strokes

4 1/8" & 4 3/8" BORE PISTONS

- Various Over-Bore sizes
- Various Strokes

S&S FINNED ALUMINUM

- Developed for the S&S Pro Stock engines, but can be used in many other gasoline racing applications
- Machined from solid aluminum billets for maximum strength and improved heat dissipation
- Replaceable sleeve made of ductile iron (superior wear resistance) allows worn or damaged cylinders to be rebuilt and reused



RINGS, WRISTPINS, KEEPERS AVAILABLE

CYLINDER HEADS

CAST PRO-STOCK

- Made from A206 grade aluminum alloy Available from minimal machined to fully machined versions
- Fully machined cylinder heads are made to customer specifications, and can be machined to fit the pushrod geometry of a number of crankcase styles and with a number of head bolt patterns
- CNC Ported

S&S® B2

- Various Combustion chambers
- CNC Ported oval intake ports bolt up to S&S Throttle Hog 70mm throttle bodies (08-up touring only)
- Stock style breather system — compatible with stock and aftermarket air cleaners
- Large 2.200" intake and 1.800" exhaust valves
- .660" lift S&S valve springs with titanium top collars
- Machined for stock sensors — EFI ready
- 4 1/8" Bore minimum
- Available in stock Twin Cam 88° bolt pattern



HEAD & BASE GASKETS, INTAKE & EXHAUST FLANGES AVAILABLE

NOT LEGAL FOR SALE OR USE ON ANY EPA POLLUTION CONTROLLED VEHICLES • FOR CLOSED COURSE COMPETITION USE ONLY. NOT INTENDED FOR STREET USE

TAPPETS & TAPPET GUIDES

BILLET PRO-STOCK STYLE, S&S® T-SERIES SA, S&S V-SERIES SA, HARLEY-DAVIDSON® SPORTSTER® MODELS



RACING PUSHRODS

- S&S offers steel pushrods for racing applications that require the utmost strength and rigidity.
- Available in sets of four non-adjustable pushrods with .375" diameter ball ends.
- These pushrods can be used in 1966-up big twin engines, Sportster® models, and S&S Pro Stock engines with adjustable solid tappets. Please specify pushrod length and whether you wish the ball ends to be installed.



1.725:1 RATIO ROCKER ARMS

- Additional valve lift can be obtained without increased tappet travel (cam lift)
- Forged from 8620 steel, then heat treated and shot peened for maximum strength and fatigue resistance
- Superior material and design makes them very strong and rigid — eliminating stress areas that cause other rocker arms to break
- Rocker shaft bushings in S&S rocker arms are ¾" long compared to the stock ½" long bushings — provides 50% more bearing support area to handle high spring loads



RACING VALVE SPRINGS

FOR MODIFIED HARLEY-DAVIDSON® 1984-UP BIG TWIN AND 1986-'03 SPORTSTER® MODELS

.660" LIFT TRIPLE VALVE SPRING KIT

- These springs can be set up for use with S&S 675 cams
- Typically used with cast iron guides
- 1.900" installed height
- 1.550" O.D. outer spring, middle spring is flat style and serves as a harmonic dampener
- Valve spring seat pressure equals 210 lbs
- Open pressure @ .660" is about 520 lbs
- Coil bind @ 1.175"



.720" LIFT TRIPLE VALVE SPRING KIT

- Typically used with bronze guides
- 1.975" installed height
- 1.570" O.D. outer spring
- Valve spring seat pressure 216 lbs
- Valve spring open pressure @ .720" is 540 lbs
- Coil bind @ 1.130"

.800" LIFT TRIPLE VALVE SPRING KIT

- SA version is for valves with ⅞" stem. Pro Stock valve spring kit accepts S&S ⅝" valve stem.
- Typically used with bronze guides
- 2.000" installed height
- 1.650" O.D. outer spring
- Valve spring seat pressure 285 lbs
- Valve spring open pressure @ .800" is 790 lbs
- Coil bind @ 1.140"

COLLARS, KEEPERS, AND SHIMS AVAILABLE

Milwaukee
Eight
2017

Twin Cam
96/103/110
2007-2017

Twin Cam
88
1999-2006

Evolution
1984-1999

Sportster
& Buell
1966-2017

Street &
Street Rod™
2014-2017

Vintage
Engines
1926-1984

X-Wedge
2007-2015

Indian &
Victory
Models

Racing
Products

Tools &
Shop
Supplies

Dealer
Services
& Promo
Items

Warranty &
Company
Policy

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CARBURETORS

SUPER D 2¼" GAS CARBURETOR

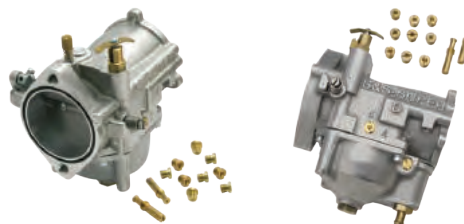
- Available with standard 1.937" venturi or larger 2.150" venturi
- Features an enrichment starting system
- Recommended for use on large displacement racing engines (not recommended for most street applications)
 - Low rpm throttling and midrange response is poor on stock displacement engines
- Recommended for larger engines

SUPER D 2¼" ALCOHOL CARBURETOR

- Similar to the Super D gas carburetor but machined for alcohol use only
- Features an enrichment starting system.

SUPER D RACING CARBURETOR

- Designed for use with alcohol and nitromethane in gravity feed fuel systems only
- Two large .380" diameter inlets allow fuel to enter the bowl
- One conventional inlet, controlled by the float and needle, supplies fuel for lower rpm operation
- Auxiliary inlet is actuated by an adjustable cam on the throttle shaft to provide additional fuel at high rpm
- Bowl is fitted with an overflow fitting to prevent excess fuel entering the bowl from flooding the engine



SUPER D AIR CLEANER KITS

- S&S high flow air filter is approx. 1.25" taller than the filter in previous air cleaner kits – more clean air to your engine

AIR HORNS AND AIR HORN CONVERSION KITS

SHORT AIR HORNS (2½")

- Fits S&S 1¾", 17/8" L Series carbs and S&S 17/8" Super A & B carbs
- Any stock carburetor with an identical air cleaner/air horn mounting pattern. These include Tillotson®, Bendix® or butterfly type Keihin®
- Available for S&S Super E & G carburetors

LONG AIR HORNS (4")

- Available for S&S Super E, G, & D carbs



ADJUSTABLE BRACKET ASSEMBLY AVAILABLE

MANIFOLDS

ROUND PORT MANIFOLDS

- Manifold bore diameter must be specified.
- 2¼" (2.063") minimum, 2½" (2.437") maximum.
- Round port may be ordered to fit either S&S SA cylinder heads or STD style large port racing cylinder heads. Port dimensions of manifolds ordered to fit S&S SA cylinder heads are 2.250" outside diameter and 1.875" inside diameter. Ports ordered to fit the STD style big port cylinder heads are machined to 2.312" outside diameter unless it is specified that the ports be left unmachined. The inside diameter of the port must be specified. 1.625" minimum, 2.220" maximum. Manifolds can also be ordered with inside diameter unmachined.
- The larger than stock outside diameter of the manifold ports necessitate the use of special S&S mounting flanges. S&S SA heads require special four-bolt flanges, and the STD style heads require special two-bolt flanges. Uses part #16-0246-S o-ring.

OVAL PORT MANIFOLDS

- The inside of the ports are left unmachined. The inside of the manifold ports are cast to an oval shape which may be worked to exactly match the port shape of the cylinder head.
- Port outside diameter is machined to 2.312", unless it is specified that the ports should be left unmachined.
- The larger than stock port outside diameter necessitates the use of special mounting flanges and a larger than stock mounting bolt pattern in the cylinder heads.



MOUNTING FLANGES & O-RINGS AVAILABLE