Machine Shop

This is a representative sampling of our porting and machine shop services.

CNC Ported Chevy

Airflow Research began as a cylinder head porting shop and continues as one of the world's premier porting facilities. Unlike other aftermarket head manufacturers, AFR's expertise was forged in the fires of competition. Over three decades we have developed the most sophisticated porting and testing techniques available in the world. In working with the world's top auto manufacturers, professional racing teams, and engine builders, AFR has developed a depth of knowledge and technical expertise that other head manufacturers simply can't match. And, we continue to provide custom porting services for virtually any cylinder head in all forms of motorsport. If you have a unique project that demands the best in airflow technology, porting techniques, and testing, Airflow Research can help you get the winning power you need!

CNC Ported Ford

Machine Shop Services

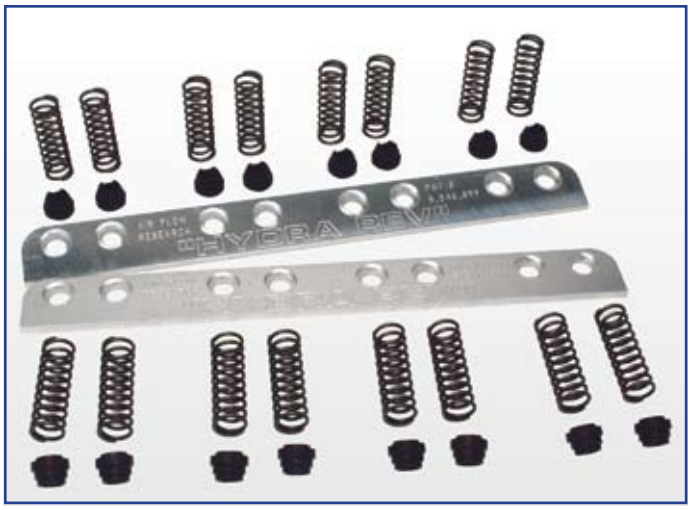
Description	*Labor Code*
Hone Valve Guides	1290
Sleeve head bolt holes	1240
Machine spring pads for oversize springs	1245
Machine steam holes for 400 cid engines	1260
R&R Valve Seats	4000
Install and hone bronze valve guides	1291
Angle mill heads, cc chambers and correct intake surface	1230
Angle mill heads, drill and spot face head bolt holes after milling, cc chambers, and correct intake surface	1231
Flat mill heads and cc chambers	1235
Flat mill heads, cc chambers, and correct intake surface	1236
Assemble heads	1250
Competition valve job and blend angles to bowls	1265
3 angle valve job	1310
Polish exterior of small block heads	1255
Auxiliary water ports, exhaust surface	1256
Auxiliary water ports, intake surface	1257
Pressure check Small Block Chevy	1258
Pressure check Big Block Chevy	1259
Heat treat AFR Heads	1271

See price list for complete list of services

Hydra-Rev

Hydra-Rev Can Add More Than 100 Horsepower On The Top End!

Hydra-Rev Kit For OEM Lifters

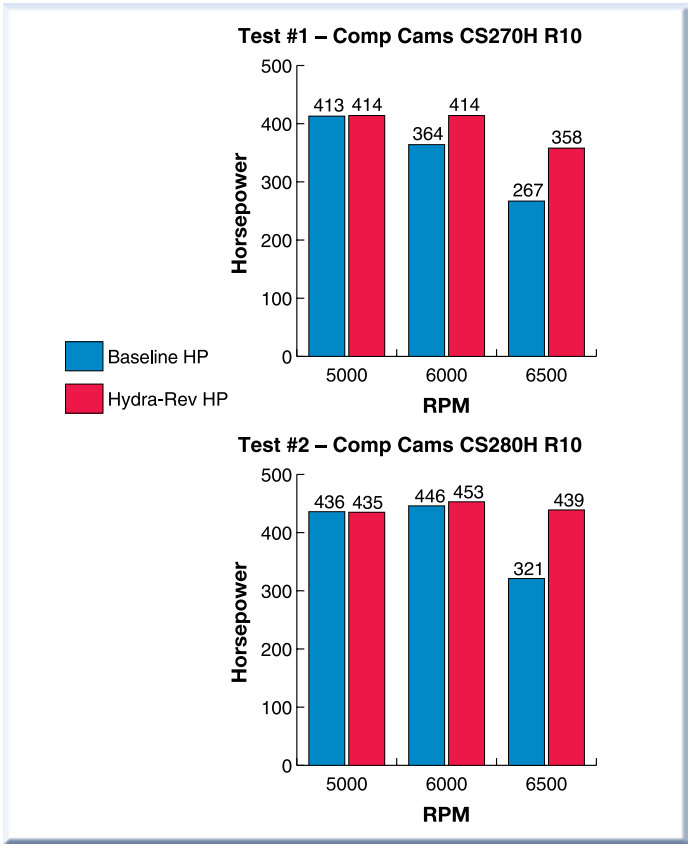


Hydra-Rev Kit For Aftermarket Lifters

Aftermarket Style Lifter

With today's valve train components and the steep acceleration rates on hydraulic roller cams, it isn't possible to properly control the valves and valve train by simply increasing valve spring pressure. This usually results in collapsed lifters. AFR has created a solution! The Hydra-Rev applies additional spring pressure to the lifter body, not the plunger. This vastly improves valvetrain stability which results in more power at higher RPM without any loss in low end torque. In testing (see the dyno charts below) Hydra-Rev increased power at 6500 RPM with Comp Cams' CS280HR10 by more than 100 horsepower!

In addition, Hydra-Rev eliminates the danger and the potential damage to components that valve float can cause. The easy to install Hydra-Rev Kits come complete with all the components you need and requires no additional machining or modifications when installed on stock or aftermarket cylinder heads. Hydra-Rev is available now for Chevrolet V8 small block except the cast iron LT1 Impala and Vortec truck heads, Pro Action Iron Lightning or Dart Iron Eagle. If heads are already installed on the engine, a spring installation tool will be required.



Hydra-Rev Kit Part Numbers

Small Block Chevy* w/factory lifters---------- 6155
Small Block Chevy* w/Seal Power or
Speed Pro style lifters ---------- **6150

** Except the cast iron LT1 Impala,Vortec truck heads, ProAction Iron Lightning or Dart Iron Eagle.*

***Will not fit Crane or Lunati Lifters*

These tests were conducted in AFR's digitally controlled dyno facility using a 350 cid Small Block Chevy equipped with AFR 195cc aluminum street heads, Edelbrock RPM Performer #7101, 600 cfm Holley carburetor, 10 to 1 compression ratio, and the camshafts shown in the title of each test.

Valves

Note: AFR 8mm Titanium Valves have a chrome nitrate on the seat area and cannot be refaced or ground on.

AFR offers a complete selection of high quality valves to suit virtually any application. For the street, AFR's superb 1-piece, swirl polished valves with chromed stems offer long life and great flow characteristics to help your ride be the killer machine it should be. For racing use, AFR's premium stainless steel, 1-piece, swirl polished valves with chromed stems are the perfect choice. If ultra-high RPM is your goal, you should consider AFR's lightweight titanium valves which help reduce valve float and improve valvetrain stability for more power.

Titanium Valves

Description	Part Number
Ferrea Titanium Vlave, 1.880 + .100 w/ Tip	7500
Ferrea Titanium Valve, 2.250 + .250 w/ Tip	7501
Ferrea Titanium Valve, 2.300 + .250 w/ Tip	7502

8MM Valves

Description	Part Number
SBC/SBF 8mm 1.600 Street Exhaust Valve	7250
SBC/SBF 8mm 2.020 Street Intake Valve	7251
SBC/SBF 8mm 2.050 Street Intake Valve	7252
SBC/SBF 8mm 1.600 X .100L Race Exhaust Valve	7254
SBC/SBF 8mm 2.080 X .100L Race Intake Valve	7255
SBC/SBF 8mm 2.100 X .100L Race Intake Valve	7256
SBC/SBF 8mm 2.020 X .100L Race Intake Valve	7257
SBC/SBF 8mm 2.050 X .100L Race Intake Valve	7258
SBC/SBF 8mm 2.080 Race Intake Valve	7259
SBC/SBF 8mm 1.600 X .100L Inconel Exhaust Valve	7260

Stainless Steel, 1-Piece, Swirl Polished Street Valves With Chromed Stems

Description	Part Number
Chevy Small Block, 1.600", Std. Length, AFR Custom	7219
Chevy Small Block, 1.600", Stock Length	7220
Chevy Small Block, 1.600", .100" Over Stock Length	7225
Chevy Small Block, 2.020", Stock Length	7204

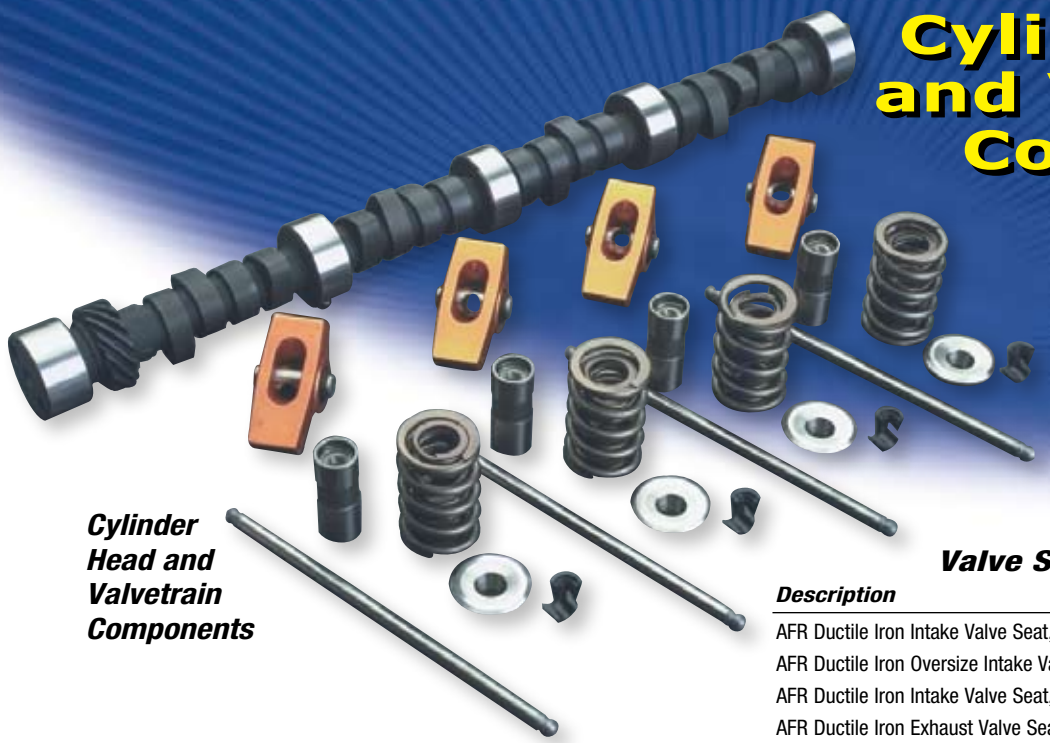
Stainless Steel, 1-Piece, Swirl Polished High Performance Valves With Chromed Stems

Description	Part Number
Chevy Small Block, 1.600", .050" Over Stock Length	7057
Chevy Small Block, 1.600", .100" Over Stock Length	7056
Chevy Small Block, 1.600", .200" Over Stock Length	7058
Chevy Small Block, 2.020", .050" Over Stock Length	7002
Chevy Small Block, 2.020", .100" Over Stock Length	7006
Chevy Small Block 2.080", .050" Over Stock Length	7018
Chevy Small Block, 2.080", .100" Over Stock Length	7026
Chevy Small Block, 2.100", .050" Over Stock Length	7031
Chevy Small Block, 2.100", .100" Over Stock Length	7037
Chevy Big Block, 1.880", 11/32" Stem, +.100" Long	7630
Chevy Big Block, 2.190", 11/32" Stem, Stock Length	7601
Chevy Big Block, 2.250", 11/32" Stem, Stock Length	7620
Chevy Big Block, 2.300", 11/32" Stem, +.100" Long	7625
Chevy Big Block, 2.300", 11/32" Stem, +.250" Long	7626

See price list for complete list of services

Cylinder Head and Valvetrain Components

AFR Offers a Complete Selection of :



Cylinder Head and Valvetrain Components

Valve Seals

Description	Part Number
AFR Rubber Valve Stem Seal, .530" x 11/32"	6611
AFR LS1 Valve Stem Seal	6612

Retainers

Description	Part Number
AFR 10º Titanium Retainer, 1.550" O.D.	8505
AFR 10º Titanium Retainer, LT1/LT4, 1.450" O.D.	8513
AFR 10º Chrome Moly Retainer, 1.450" O.D.	8510
AFR 7º Chrome Moly Retainer, 1.250" O.D.	8514
AFR 10º Chrome Moly Retainer, 1.550" O.D.	8511

Valve Locks

Description	Part Number
AFR 10º Valve Locks, 11/32" standard, set of 16	9005
AFR 7º Valve Locks, 8mm - Bead Lock Style	9007
AFR 10º Valve Locks, 8mm - Bead Lock Style	9009

Lash Caps

Description	Part Number
AFR Lash Cap, 11/32"	6608
AFR Lash Cap, 8mm	6609

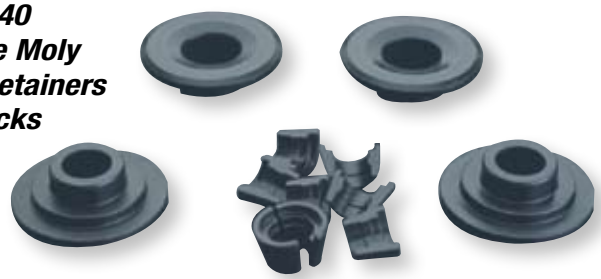
AFR Hydraulic Valve Springs

AFR Roller Valve Springs

Valve Seats and Guides

Description	Part Number
AFR Ductile Iron Intake Valve Seat, 2.200" O.D.	9060
AFR Ductile Iron Oversize Intake Valve Seat, +.010	9065
AFR Ductile Iron Intake Valve Seat, Big Block Chevy	9062
AFR Ductile Iron Exhaust Valve Seat, 1.695" O.D.	9070
AFR Ductile Iron Oversize Exhaust Valve Seat, +.010	9066
AFR Bronze Valve Guide, .502" O.D.	9050
AFR Bronze Valve Guide, .505" O.D.	9056
AFR Bronze Big Block Valve Guide, .545 O.D.	9055

AFR Titanium Retainers and Locks



AFR 4140 Chrome Moly Steel Retainers and Locks

Valve Springs, Spring Cups, Spring Seats, and Shims

AFR Valve Springs are wound with the finest quality spring steel to provide all the muscle you need to control those wild cam profiles.

Description	Part Number
AFR Roller Lifter Spring, 1.550"	8000
AFR Flat Tappet Spring, 1.530"	8015
AFR Flat Tappet Spring, 1.550"	8016
AFR Hydraulic Lifter Spring, 1.290"	8017
Valve Spring Shim, .015", 1.450" O.D.	6325
Valve Spring Shim, .030", 1.450" O.D.	6326
Valve Spring Shim, .060", 1.450" O.D.	6327

Cylinder Head and Valvetrain Components

AFR Offers a Complete Selection of :

AFR Stud Girdle and Adjusting Nuts

See price list for complete list of services

Stud Girdles

Description	Part Number
AFR Chevy Small Block Eliminator Stud Girdle Bars, Standard, Pair	6200
AFR Chevy Small Block Eliminator Stud Girdle Bars, Offset, Pair	6206
AFR Stud Girdle Adjusting Nuts, 3/8", set of 16	6225
AFR Stud Girdle Adjusting Nuts, 7/16", set of 16	6220
AFR Small Block Ford Stud Girdle	6207
AFR Big Block Chevy Stud Girdle	6210
AFR Big Block Chevy Stud Girdle Adjusting Nuts (Intake)	6211
AFR Big Block Chevy Stud Girdle Adjusting Nuts (Exhaust)	6212

Rocker Studs

Description	Part Number
AFR Rocker Studs, 3/8", standard length, set of 16	6410
AFR Rocker Studs, 7/16", standard length, set of 16	6405

Rocker Arms

Description	Part Number
AFR's high quality rocker arms can help you get the power, control, and reliability that you need from your valvetrain.	
AFR Roller Rockers, 3/8"x1.5, set of 16	6025
AFR Roller Rockers, 3/8"x1.6, set of 16	6026
AFR Roller Rockers, 7/16"x1.5, set of 16	6027
AFR Roller Rockers, 7/16"x1.6, set of 16	6028
T&D Shaft Rocker Kit, Small Block Chevy	6053

AFR Roller Rockers

AFR Hardened Pushrods

Pushrods

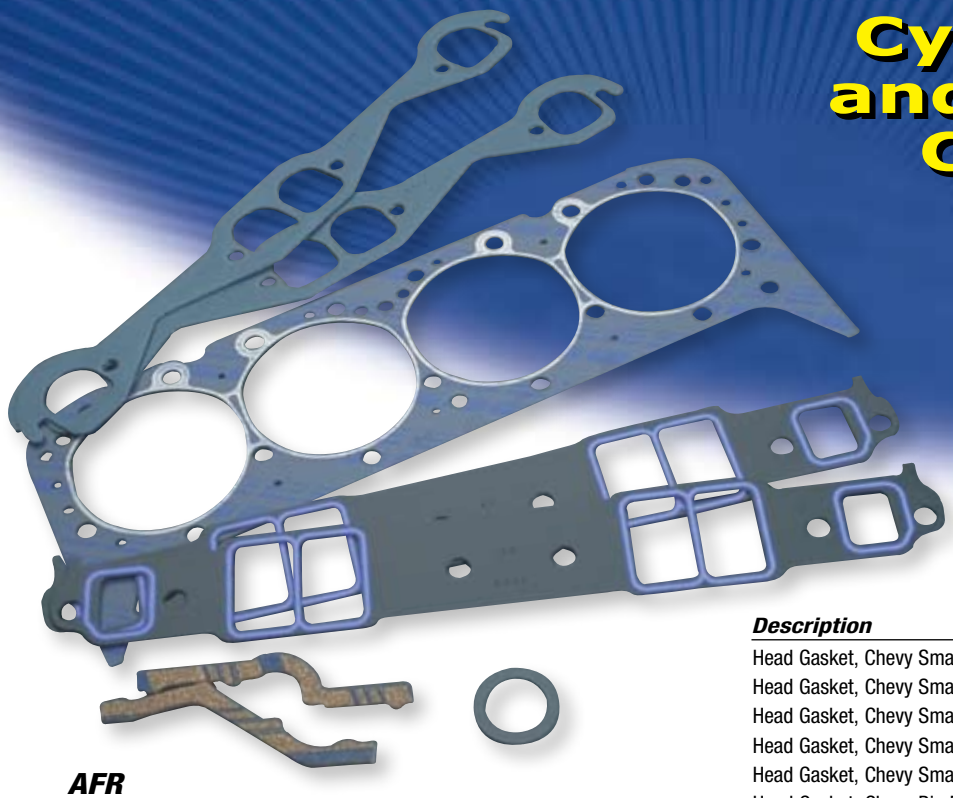
Description	Part Number
AFR Push Rods, 5/16", Standard Length, Set of 16	6600
AFR Push Rods, 5/16", +.100" Long, Set of 16	6601
AFR Push Rods, 5/16", +.200" Long, Set of 16	6602
AFR Push Rods, 5/16", +.300" Long, Set of 16	6603
AFR Push Rods, 5/16", 1987 and later, hydraulic roller, 7.200" overall length, Set of 16	6606

Guide Plates

Description	Part Number
AFR Chevy Small Block (except 227) Guide Plates, set of 8	6110
AFR Ford Small Block Guide Plates, 5/16", set of 8	6107
Isky 5/16" Adjustable Guide Plates, set of 8	6104

Cylinder Head and Valvetrain Components

AFR Offers a Complete Selection of :



AFR Gaskets

AFR Head Studs, Nuts, and Washers

Fel Pro Gaskets

Description	*Part Number*
Head Gasket, Chevy Small Block, Fel Pro #1034	6807
Head Gasket, Chevy Small Block, 4.166" bore, Fel Pro #1003	6800
Head Gasket, Chevy Small Block, 4.125" bore, Fel Pro #1074	6803
Head Gasket, Chevy Small Block, 4.190" bore, Fel Pro #1004	6801
Head Gasket, Chevy Small Block, 4.200" bore, Fel Pro #1014	6802
Head Gasket, Chevy Big Block, 4.540" bore, Fel Pro #1017	6850
Head Gasket, Chevy Big Block, 4.630" bore, Fel Pro #1057	6852
Head Gasket, Ford Small Block, 1962-82, 4.100" bore, Fel Pro #1011-1	6808
Head Gasket, Ford Small Block, 1983-93, 4.100" bore,	
Intake Gasket, Chevy Small Block, 1.250"x2.040", LT1, Fel Pro #1284	6827
Intake Gasket, Chevy Small Block, 1.280"x2.090", Fel Pro #1205	6810
Intake Gasket, Chevy Small Block, 1.250"x2.100", LT4, GM	0000
Intake Gasket, Chevy Small Block, Raised Runner,	
1.310"x2.180", Fel Pro #1206	6820
Intake Gasket, Chevy Small Block, Raised Runner,	
1.310"x2.210", Fel Pro #1263	6826
Intake Gasket, Chevy Small Block, 1.250"x2.150", Fel Pro #1282	6831
Intake Gasket, Chevy Small Block, 1.380"x2.280", Fel Pro #1207	6821
Intake Gasket, Chevy Small Block, 1.340"x2.210", .120" thick, Fel Pro #1266	6825
Intake Gasket, Chevy Small Block, 1.380"x2.280", .120" thick, Fel Pro #1267	6830
Intake Gasket, Chevy Big Block, 1.820"x2.540", Fel Pro #1211	6855
Intake Gasket, Ford Small Block, 1.200"x2.000", Fel Pro #1250	6828
Exhaust Gasket, Chevy Small Block 180cc & 195cc Heads, Fel Pro #1404	6834
Exhaust Gasket, Chevy Small Block 210cc, 215cc, 220cc,	
& 227cc Heads, Fel Pro #1406	6835
Exhaust Gasket, Chevy Big Block Aluminum Heads, Fel Pro #1412	6858
Exhaust Gasket, Ford Small Block Aluminum Heads, Fel Pro #1415	6837
Valve Cover Gasket, Chevy Small Block, Fel Pro #1604	6838

Head Studs, Head Bolts, Head Bolt Sleeves, and Head Bolt Washers

Description	*Part Number*
ARP Head Stud Kit, std. 12-point, SBC, engine set	6305
ARP Head Stud Kit, 12-point, SBC, 18º Head, engine set	6306
ARP Head Stud Kit, std. 12-point, BBC, engine set	6507
ARP Head Bolt Kit, std., Small Block Chevy, engine set	6310
ARP Head Bolt Kit, abbreviated 12-point, SBC, 6 bolt set	6311
ARP Head Bolt Kit, 12-point, SBC, 18º Head, engine set	6309
ARP Head Bolt Kit, std. 12-point, BBC	6308
ARP Head Nut Kit, Abbreviated 12-point, SBC, set of 6	6301
ARP Head Bolt Washer Kit, Small Block Chevy	6320
ARP Head Bolt Sleeve, Small Block Chevy	6054
ARP 12-point x 7/16" nut	6315

AFR Head Bolts, Nuts, and Washers

See price list for complete list of services

Valve Covers

#6700

Tall Valve Covers

Description	*Part Number*
AFR SBC Tall Valve Covers, Black Powder Coat, Includes breathers and rubber grommets	6700
AFR SBC Tall Valve Covers, Polished Aluminum, Includes breathers and rubber grommets	6701
AFR SBF Tall Valve Covers, Black Powder Coat, Includes breathers and rubber grommets	6710
AFR SBF Tall Valve Covers, Polished Aluminum, Includes breathers and rubber grommets	6711

#6712

#6711

Valve Covers

#6720

Standard Valve Covers

Description	Part Number
AFR SBC Standard Valve Covers, Black Powder Coat, Includes breathers and rubber grommets	6702
AFR SBC Standard Valve Covers, Polished Aluminum, Includes breathers and rubber grommets	6703
AFR SBF Standard Valve Covers, Black Powder Coat, Includes breathers and rubber grommets	6712
AFR SBF Standard Valve Covers, Polished Aluminum, Includes breathers and rubber grommets	6713
AFR BBC Standard Valve Covers, Black Powder Coat, Includes breathers and rubber grommets	6720
AFR BBC Standard Valve Covers, Polished Aluminum, Includes breathers and rubber grommets	6721

#6703

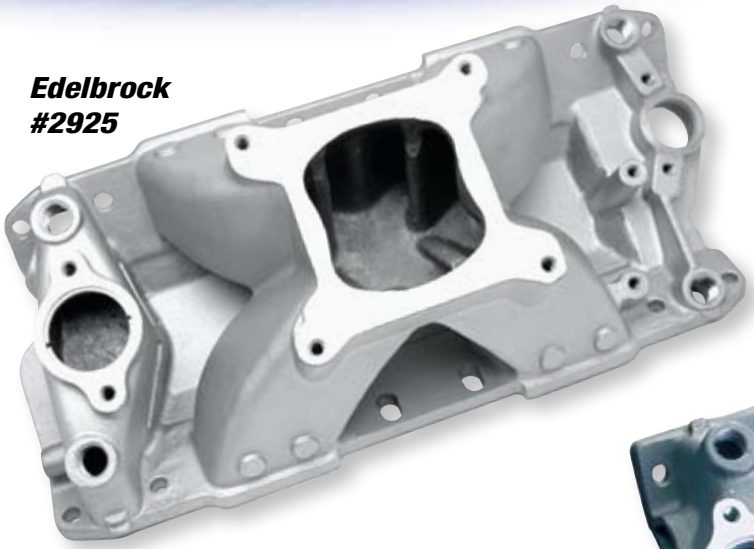
See website for photos of part numbers 6713

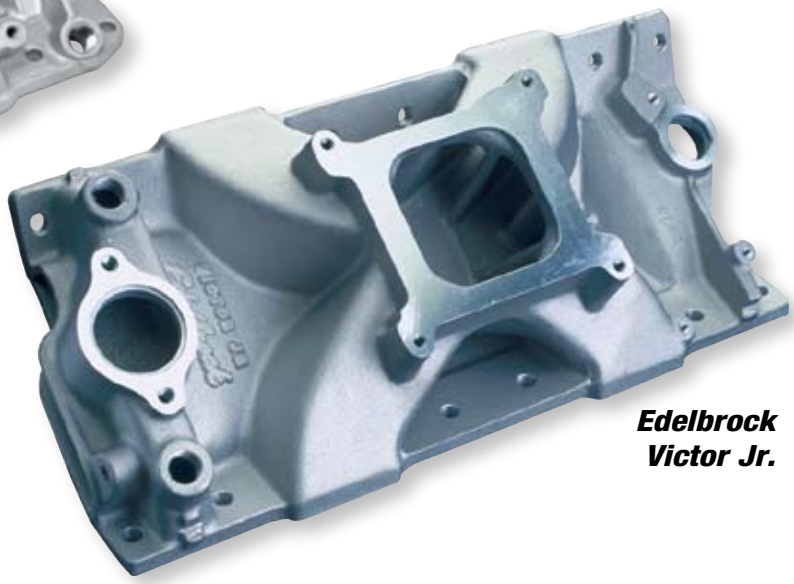
#6721

Intake Manifolds

- Up to 17 horsepower more than competing manifolds!
- Higher port volume and high velocity design make the difference.
- Permanent mold casting for more accurate ports, strength, and density.
- Cast-in bosses for nitrous nozzles!
- Extra water outlets in rear!
- Dual distributor hold-downs!

Edelbrock #2925





Edelbrock Victor Jr.

Edelbrock #2926

Intake Manifolds

Description	*Part Number*
Chevy Small Block, Edelbrock Victor Jr., #2975	5031
Edelbrock Single Plane #2925	5033
Chevy Small Block, Edelbrock Tall Port Super Victor#2926	5030
Chevy Big Block, Edelbrock 454-R Single 4-barrel 4500, #2907	5500

Intake Manifolds To Block Spacers

Description	*Part Number*
Chevy Small Block, 1/8" Manifold/Block Spacers, pair	5066
Chevy Small Block, 3/16" Manifold/Block Spacers, pair	5067
Chevy Small Block, 1/4" Manifold/Block Spacers, pair	5068
Chevy Small Block, 5/16" Manifold/Block Spacers, pair	5069

Chevy Dyno Tested Street Packages

Featuring AFR Street Heads, AFR Hydraulic Cams, and AFR Manifolds

No Blower, No Bottle, Just POWERFUL Heads

Efficient Cylinder Heads + Small Camshaft = Gigantic Torque, Monster Horsepower, and Great Street Ability
Compare our Low RPM Torque to the competition.
Don't be fooled by other packages that require camshafts 15º to 20º larger
at .050 to get near our peak horsepower.

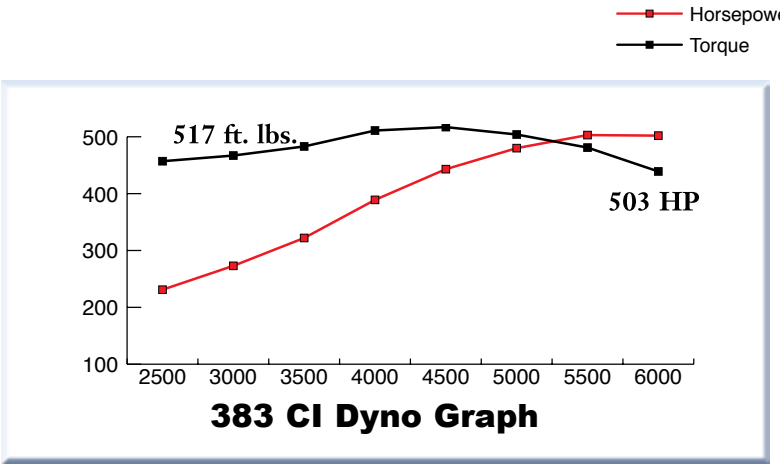
Visit Our Website For Other Dyno Combinations

383 cid Small Block Chevy Package

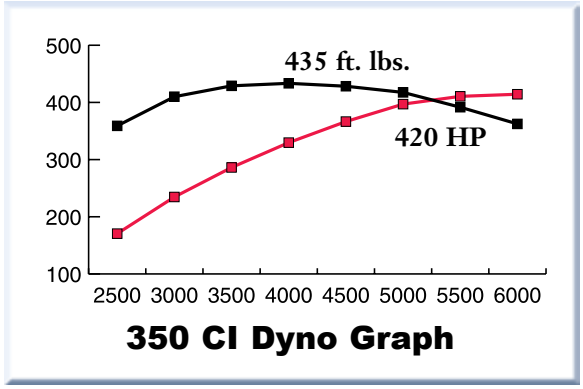
AFR 195cc Street Heads
9.5 to 1 Compression
1 3/4" Headers
Edelbrock #7101 and 0-4779 750 cfm Holley Carb
Comp Cams Hydraulic Roller Cam #12-433-8
MSD Distributor 36° Timing
93° Octane Pump Gas

350 cid Small Block Chevy Package

AFR 180cc Street Heads
9 to 1 Compression
1 5/8" Headers
Edelbrock #7101 and 600 cfm Holley Carb
110E Hydraulic Cam
Intake: .460 lift/218º @ .050, Exhaust: .470 lift/223º @ .050
110 lobe center, 800 RPM idle, 16 lbs. of vacuum



383 CI Dyno Graph



350 CI Dyno Graph

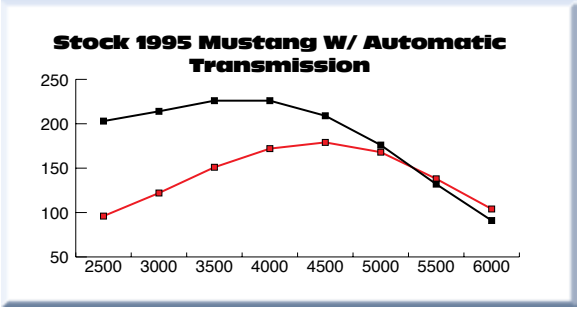
Ford Dyno Tested Street Packages

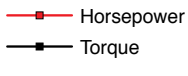
1995 Mustang 5.0 With Automatic Transmission.
All Dyno Testing Independently Done on a Mustang Chassis Dyno

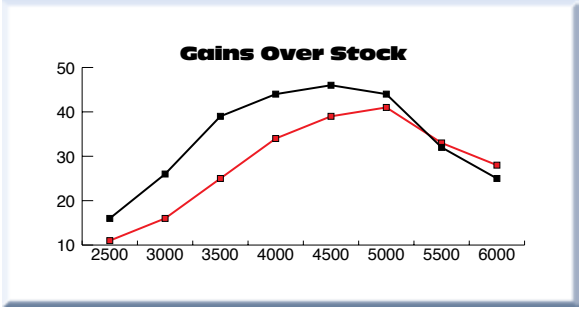
Phase 1 Testing-AFR 165cc Heads Only

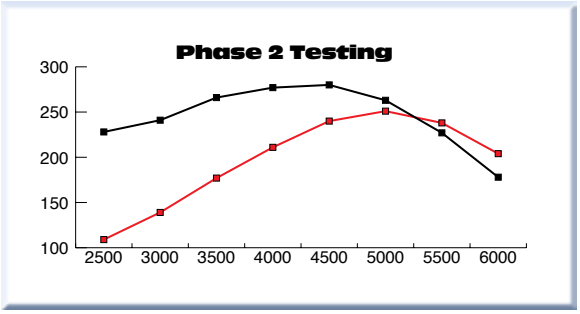
	Stock 1995 Mustang w/Auto. Transmission		AFR 165cc Emission Legal Head-Phase 1		Gains Over Stock	
RPM	HP	TORQUE	HP	TORQUE	HP	TORQUE
2500	96	203	107	219	+11	+16
3000	122	214	138	240	+16	+26
3500	151	226	176	265	+25	+39
4000	172	**226**	206	**270**	+34	+44
4500	**179**	209	**218**	255	+39	**+46**
5000	168	176	209	220	**+41**	+44
5500	138	132	171	164	+33	+32
6000	104	91	132	116	+28	+25

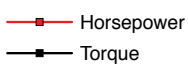
Rear Wheel H.P.

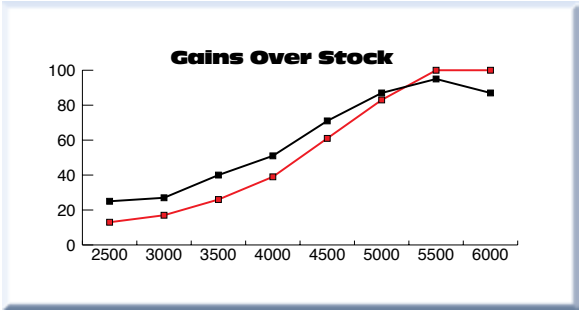












Phase 2 Testing-AFR 165cc Heads

Ford Motorsports 1 5/8" Headers, Bassani 2 1/2" Exhaust, March Pulleys, RPM Performer Manifold, BBK 65mm TBI, K&N Air Filter Super Chips, Pro Magnum 1.6 Roller Rockers

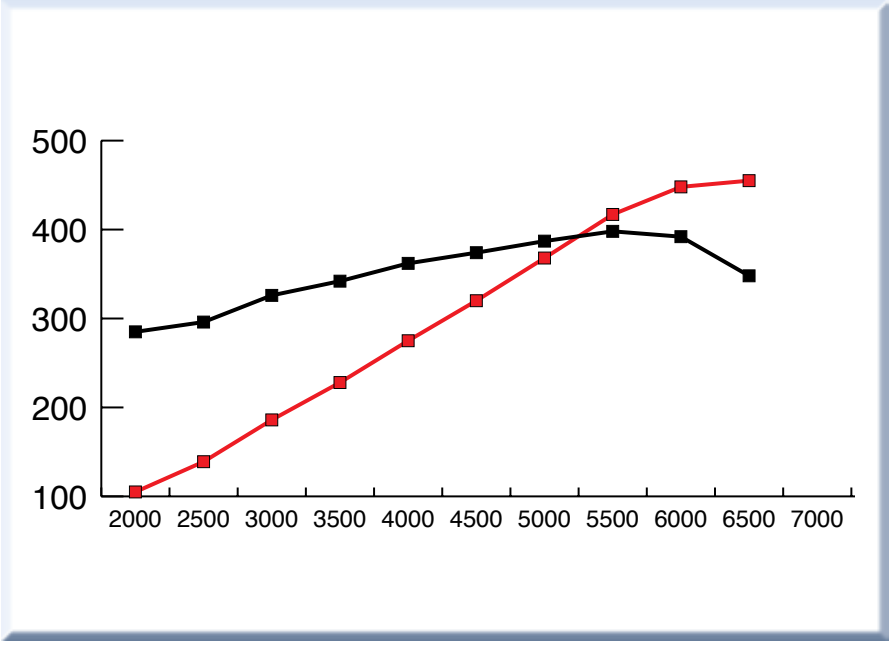
	Stock 1995 Mustang w/Auto. Transmission		AFR 165cc Emission Legal Head-Phase 2		Gains Over Stock	
RPM	HP	TORQUE	HP	TORQUE	HP	TORQUE
2500	96	203	109	228	+13	+25
3000	122	214	139	241	+17	+27
3500	151	226	177	266	+26	+40
4000	172	**226**	211	277	+39	+51
4500	**179**	209	240	**280**	+61	+71
5000	168	176	**251**	263	+83	+87
5500	138	132	238	227	**+100**	**+95***
6000	104	91	204	178	+100	+87

Rear Wheel H.P. *All This H.P. With The STOCK CAM!

Ford Dyno Tested Street Packages

Dyno Test Criteria

Horsepower:	455 H.P.
Engine:	302 C.I.
Heads:	185cc AFR
Compression:	10:1
Carburetor:	650 cfm Speed Demon 84/87 Jets
Ignition:	MSD Digital 7, 36° Timing
Cam:	Comp Cams Extreme Energy Hyd Roller 282 Cam, 565/574 232/240@.050 with 1.6 Rockers, 112 Lobe Sep
Exhaust:	1 3/4
Fuel:	92 Octane
Manifold:	Victor Jr.



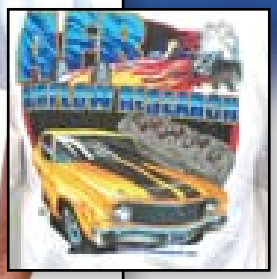
Engine Dyno Test

RPM	HP	TORQUE
2000	108	285
2500	141	296
3000	186	326
3500	228	342
4000	275	362
4500	320	374
5000	368	387
5500	417	398
6000	448	392
6100	455	391

Engine Dyno tested by
Westech Performance Group
Mira Loma, California

Visit Our Website For Other Dyno Combinations

Shirts



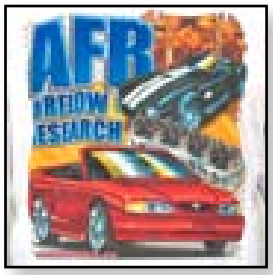
Front #9701

Back

Front #9705

Back

Front #9703



Back

Front #9711
Available in white - #9712

Back

Front #9709 - Long Sleeve
#9710 - Short Sleeve

Apparel

9701 - T-shirt Chevelle BBC
9703 - T-shirt Mustang SBF
9705 - T-shirt Corvette LS1
9707 - T-shirt Monte Carlo SBC
9709 - T-shirt black AFR Racing long sleeve
9710 - T-shirt black AFR Racing short sleeve
9711 - Button down cotton twill shirt royal blue
9712 - Button down cotton twill shirt royal white
9731 - AFR light weight micro fiber jacket black
9735 - AFR heavy jacket fleece liner
9740 - AFR Banners

Note: add suffix to AFR Part Number for size

M = medium
L = large
XL = extra large

Front
*Black **#9731***

Back

*Front **#9735***

Back

38 Years of Excellence

Engineering Team: Ying, Sergio, Oscar, James

Management Team: Leighann, Tony, Sergio, Chris, Jess, Rick

Sales Team: Keith, Jerami, Jason, Eric

Office Team: Leighann, Irene, Veronica

Production Team

Footnotes

As with all aftermarket heads a different length pushrod might be required.

As with all aftermarket heads your factory self aligning rockers might no longer provide the reliability required.

Due to many available factory OEM style/variations your existing stud girdle may not fit.

AFR LS1 head do not have provisions for 1997-1998 perimeter bolt valve covers, conversion kits availabe.

As with all aftermarket heads with 1.550 O.D. springs, head bolt or studs with smaller diameter head might be required for easier installation. As with all aftermarket SB Chevy or Ford heads with 1.625 O.D. springs might require the spring to be removed to install the head.

Valve Springs: AFR springs that come standard with our assembled packages are very high quality and are sufficient for most applications. However, forced induction applications and cams with aggressive ramp rates (some cam manufacturers now offer much faster ramp designs and more aggressive cam profiles) may require additional spring pressure. We offer optional valve springs for these types of applications. AFR also recommends the use of billet cam cores which tolerate higher spring loads. Please don't hesitate to contact us directly if you question which spring is more ideally suited to your application.

AFR assumes no responsibility for damage if the end user builds an engine without properly verifying he has enough piston to valve clearance (depth and radial clearance both checked). We recommend a minimum depth of .080 on the intake valve and .100 on the exhaust with a radial clearance of .020 minimum around the perimeter of each valve. Clay is recommended to visually verify both depth as well as radial clearance. Just checking depth is not enough….the position of the valve pocket must also be addressed.

BBC Domed Pistons: With some domed aftermarket pistons, it may be necessary to slightly clearance or modify the piston due to our more modern (efficient) heart shaped combustion chamber design. Most of the newer manufacturer's dome profiles will clear. Note that usually less than 1 cc of aluminum is removed which only equates to a weight reduction in the piston of one to two grams. If your rotating assembly is already balanced this is a non-event and creates a VERY slight overbalance which in theory brings your engine into a better balance at slightly higher RPM. While some of you might be inclined to remove the material from the actual cylinder head note that all of the combustion chamber shapes are very critical to flow and altering the cylinder head can and will effect flow and power production. The easiest way to check for this is turning the engine over slowly with the cylinder head installed without the head gasket. See web site for more details.

See below what factory OEM head AFR used for CAD/CAM modeling.

Please see above footnotes and the specific product page your researching for specific variences from OEM heads.

AFR LS1 - Was modeled after the GM LS6 #243 aluminum head.

AFR Small Block Chevy - Was modeled after the GM L-98 aluminum head.

AFR Big Block Chevy - Was modeled after the GM LS6 open chamber rectangle port castings.

AFR Outlaw Small Block Ford - Was modeled after the Ford GT 5.0 cast iron head.

AFR Formulas For Racers and Engine Builders

We use these formulas on a daily basis and thought that you might like to have them too.

Horsepower

Horsepower (HP) = $\frac{\text{Torque (ft. lbs.) x RPM}}{5252}$

Displacement

Cubic Inch Displacement (cid) = Bore x Bore x Stroke x .7854 x number of cylinders

Approximate Rear Wheel H.P. Converted to Flywheel H.P.

Rear Wheel H.P. = $\frac{\text{Flywheel H.P.}}{\begin{matrix}\text{80 Auto Tranny}\\ \text{75 Manual Tranny}\end{matrix}}$

Torque

Torque = $\frac{\text{Horsepower x 5252}}{\text{RPM}}$

Carburetor Size

Carburetor CFM Req. = $\frac{\text{CID x Maximum RPM}}{3456}$

SAE/Metric Conversion

.061 cubic inch = 1 cubic centimeter

Estimated Horsepower Based On CFM For 350 C.I.

HP = .2575 x CFM (at 28" of water) x number of cylinders

Compression Ratio

Compression Ratio = $\frac{\text{S.V. + C.V.}}{\text{C.V.}}$

Where...

$\text{S.V.} = \frac{3.1416 \times \text{Bore} \times \text{Bore} \times \text{Stroke}}{4}$

and...

C.V. = (chamber volume - dome volume + deck clearance volume + gasket volume) x .061

Flow Conversion Chart

Want flow at:

Have flow at:	3"	5"	7"	10"	12"	15"	20"	25"	28"	30"	35"	40"	45"
3"	1.00	1.29	1.53	1.82	2.00	2.24	2.58	2.89	3.05	3.16	3.42	3.65	3.87
5"	.744	1.00	1.18	1.41	1.55	1.73	2.00	2.24	2.37	2.45	2.65	2.83	3.00
7"	.655	.845	1.00	1.12	1.31	1.46	1.69	1.89	2.00	2.07	2.24	2.39	2.54
10"	.548	.707	.837	1.00	1.09	1.22	1.41	1.58	1.67	1.73	1.87	2.00	2.12
12"	.500	.645	.764	.913	1.00	1.12	1.29	1.44	1.53	1.58	1.71	1.83	1.94
15"	.447	.577	.683	.816	.894	1.00	1.15	1.29	1.37	1.41	1.53	1.63	1.73
20"	.387	.500	.592	.707	.774	.866	1.00	1.12	1.18	1.22	1.32	1.41	1.50
25"	.346	.447	.529	.632	.683	.775	.894	1.00	1.06	1.10	1.18	1.28	1.34
28"	.327	.442	.500	.598	.654	.732	.845	.945	1.00	1.04	1.12	1.20	1.27
30"	.318	.408	.483	.577	.632	.707	.816	.913	.966	1.00	1.08	1.15	1.22
35"	.293	.378	.447	.535	.586	.655	.756	.845	.894	.926	1.00	1.07	1.13
40"	.274	.354	.418	.500	.548	.612	.707	.791	.837	.866	.935	1.00	1.08
45"	.258	.333	.394	.471	.516	.577	.667	.745	.789	.816	.882	.943	1.00

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