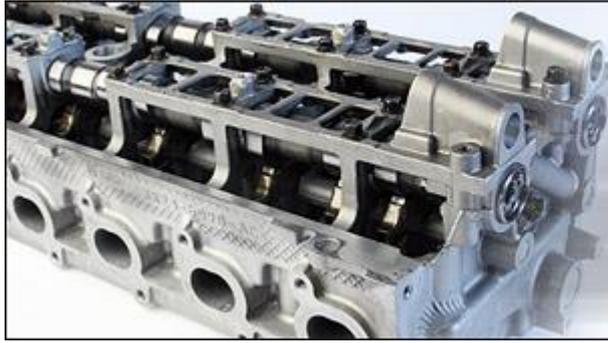


Cylinder Heads



Ford 4.0L 6 Cylinder DOHC Cylinder Heads

Although we have been building high performance engines since 1978, it wasn't until 2004 that we began development work on the Ford 4.0L DOHC 6 cylinder turbocharged engine. We witnessed numerous catastrophic engine failures after consumers had undertaken simple modifications such as free flowing exhausts and cold air intake systems to otherwise stock vehicles, so it became apparent there was a need for us to engineer some hard core solutions to address inherent factory weaknesses.

The DOHC 4 valve per cylinder head is very well designed and suits forced induction applications due to the high percentage of exhaust to inlet flow, a short, semi pent roof combustion chamber (66 cc average in BA-BF Series), two small squish areas and a centrally located spark plug for fast and efficient flame propagation.

Listed below are the corrected flow rates of a standard BA-BF-FG 6 cyl DOHC heads, flowed at 25" H2O.

BA-BF 6 Cyl DOHC Head at 25"H2O

Valve lift	Inlet - CFM	Exhaust - CFM	% - EX to IN
.100"	72.0	75.9	105%
.150"	107.0	111.7	104.5%
.200"	144.3	141.1	97.7%
.250"	177.8	162.4	91.3%
.300"	206.9	174.9	84.5%
.350"	228.3	184.1	80.6%
.400"	242.7	190.2	78.3%
.450"	249.9	194.3	77.7%
.500"	252.9	198.3	78.4%
.550"	254.1	200.8	79.0%

Average: 87.7%

FG "hi-swirl" 6 Cyl DOHC Head at 25" H2O

Valve lift	Inlet - CFM	Exhaust - CFM	% - EX to IN
.100"	76.0	75.9	101%
.150"	109.7	111.7	101.8%
.200"	147.0	141.1	96.0%
.250"	176.0	162.4	92.2%
.300"	205.3	174.9	85.1%
.350"	229.2	184.1	80.3%
.400"	241.0	190.2	78.9%
.450"	249.6	194.3	77.8%
.500"	253.1	198.3	78.3%
.550"	258.4	200.8	77.7%

Average: 86.9%

The FG "Swirl head" has a slight change to the combustion chamber design to promote swirl and as a result the volume is reduced slightly to 64-65cc. The heads respond to porting in a similar way to the earlier cylinder heads and as you can see, the swirl inducing port profile is limited to the inlet only - the exhaust port profile is the same as the early heads.

For 2014 we have available a number of new innovations – we upgraded our valve seat profiles to now include up to 7 angles and now offer a full 5 –axis CNC porting on our Stage 5 heads.

Valve springs are always a problem in forced induction OHC engines, as comparatively light reciprocating valvetrain mass usually means a short, light spring is fitted as standard equipment. This usually limits the number of valve spring options available, however we have 3 different springs available to suit almost every conceivable application - please refer to our valvetrain section.

Forced induction engines also need good quality valves, especially on the exhaust due to increased heat when running hydrocarbon based fuels. The OE high nickel exhaust valve (identifiable by the O forged in the head) is good for moderate performance applications and for extreme duty applications we have USA made single groove stainless valves with flash chromed stems and hardened tips. The hi flowing exhaust port also produces high exhaust gas temperatures, typically 200-300 degrees F higher than other turbo engines, which again highlights the need for an extreme duty exhaust valve.

O-ringing of combustion chambers is required when using a copper head gasket and for 2014 we now include our #306168 O-Ringed head gasket in all 698 and 998 Engine packages.





Cylinder Heads - Outright

#306190 - Stage 3 head suit Ford DOHC 6 cyl BA Series

Stage 3 Porting, fully serviced, multi angle valve job, fitted with Atomic #306800 springs and new seals.

#306191 - Stage 3 head suit Ford DOHC 6 cyl BF Series

Stage 3 Porting, fully serviced, multi angle valve job, fitted with Atomic #306800 springs and new seals.

#306192 - Stage 3 head suit Ford DOHC 6 cyl FG Series

Stage 3 Porting, fully serviced, multi angle valve job, fitted with Atomic #306800 springs and new seals.

#306193 - Stage 4 head suit Ford DOHC 6 cyl BA Series

Stage 4 Porting, fully serviced, multi angle valve job, fitted with stainless valves, chrome moly valve locks, Atomic #306801 springs, Titanium retainers and new seals.

#306194 - Stage 4 head suit Ford DOHC 6 cyl BF Series

Stage 4 Porting, fully serviced, multi angle valve job, fitted with stainless valves, chrome moly valve locks, Atomic #306801 springs, Titanium retainers and new seals.

#306195 - Stage 4 head suit Ford DOHC 6 cyl FG Series

Stage 4 Porting, fully serviced, multi angle valve job, fitted with stainless valves, chrome moly valve locks, Atomic #306801 springs, Titanium retainers and new seals.

#306196 – Stage 5 Full CNC Ported head suit BA-BF Series

Full 5-axis CNC ported Ford DOHC 6 cylinder head. Includes competition valves, Race springs, titanium retainers, 7/7 angle valve job and new seals.

Cylinder Heads - Exchange

#306190-RB Stage 3 head suit Ford DOHC 6 cyl BA Series

Stage 3 Porting, fully serviced, multi angle valve job, fitted with Atomic #306800 springs and new seals. Customers own head.

#306191-RB Stage 3 head suit Ford DOHC 6 cyl BF Series

Stage 3 Porting, fully serviced, multi angle valve job, fitted with Atomic #306800 springs and new seals. Customers own head.

#306192-RB Stage 3 head suit Ford DOHC 6 cyl FG Series

Stage 3 Porting, fully serviced, multi angle valve job, fitted with Atomic #306800 springs and new seals. Customers own head.

#306193-RB Stage 4 head suit Ford DOHC 6 cyl BA Series

Stage 4 Porting, fully serviced, multi angle valve job, fitted with stainless valves, chrome moly valve locks, Atomic #306801 springs, titanium retainers and new seals. Customers own head.

#306194-RB Stage 4 head suit Ford DOHC 6 cyl BF Series

Stage 4 Porting, fully serviced, multi angle valve job, fitted with stainless valves, chrome moly valve locks, Atomic #306801 springs, Titanium retainers and new seals. Customers own head.

#306195-RB Stage 4 head suit Ford DOHC 6 cyl FG Series

Stage 4 Porting, fully serviced, multi angle valve job, fitted with stainless valves, chrome moly valve locks, Atomic #306801 springs, Titanium retainers and new seals.