

DART **LS**NEXT *Small Block Chevy - Technical Notes*

Deck Height	.....	9.240" to 9.450"
Bore	.....	4.000 & 4.125
Main Bearing Size	.....	LS-1 (2.558" – 2.559")
Weight	.....	227lbs
Largest Recommended Bore	.....	4.200"
Largest Recommended Crank Stroke	.....	4.100"
Camshaft Bearing Diameter	.....	55mm babbit
Stock Camshaft Position	.....	4.885"
Cylinder Wall Thickness, min.	.....	.275" @ 4.185"
Deck Thickness, min	.....	.625 (5/8)

Torque Specs - Main Caps	7/16" bolts	65 ft lbs w/ CMD # 3 high pressure lube.
	3/8" bolts	40 ft lbs w/ CMD # 3 high pressure lube.
	8mm bolts	22 ft lbs w/ CMD # 3 high pressure lube.

Actual deck height will be .002" - .005" taller for additional machining requirements.

Factory style Cloyes timing gear is required PN# 9-3658TX3. Double timing chains are available but block must be clearanced before use.

Note: The block is designed for a single row timing chain. When using a double roller chain set you must check for interference and block clearance accordingly.

Cam bearing OD should be deburred before installation.

When initially removing main caps, the caps & block should be deburred before reinstalling. This will insure that correct main size is maintained.

Pan rails have factory width and shortened removing the "Y" block design.

The LS Next block requires a special modified oil pan which is available through Stef's, Moroso, Canton and others.

Dart offers billet pan rail spacers for use with factory pans.

Additional rod clearance may be necessary at bottom of cylinders.

Head stud holes are blind. They do not go into the water jacket.

Loctite # 271 is recommended when installing the head and main studs into the block.

Studs should *never* be torqued into block. They should only be lightly snugged.

Note: The tapered portion of the stud body should never contact the deck or bolt hole counter bore. If the stud body does thread too deep and makes contact with the deck surface then you should use a small ball bearing in the bottom of the bolt hole to space up the stud accordingly.

Press-in freeze plugs are sold separate PN# 32820000B

Front cam retaining plate included and sold separate for replacement PN# 32226000

The block uses factory style crank driven oil pumps or aftermarket external, or dry sump systems.

Note: Must use remote oil filter.

PRIORITY MAIN OIL SYSTEM

The oil feed is located on the front driver's side of the block just above the oil pan rail and is machined for -10an w/ o-ring. The supply hole is located on the rear driver's side bottom just above the oil pan rail and is machined for -10an w/ o-ring.

Oil is directed to the main bearings first, then to the cam bearings. The lifters are oiled utilizing center oil crossovers fed from the main oil galley.

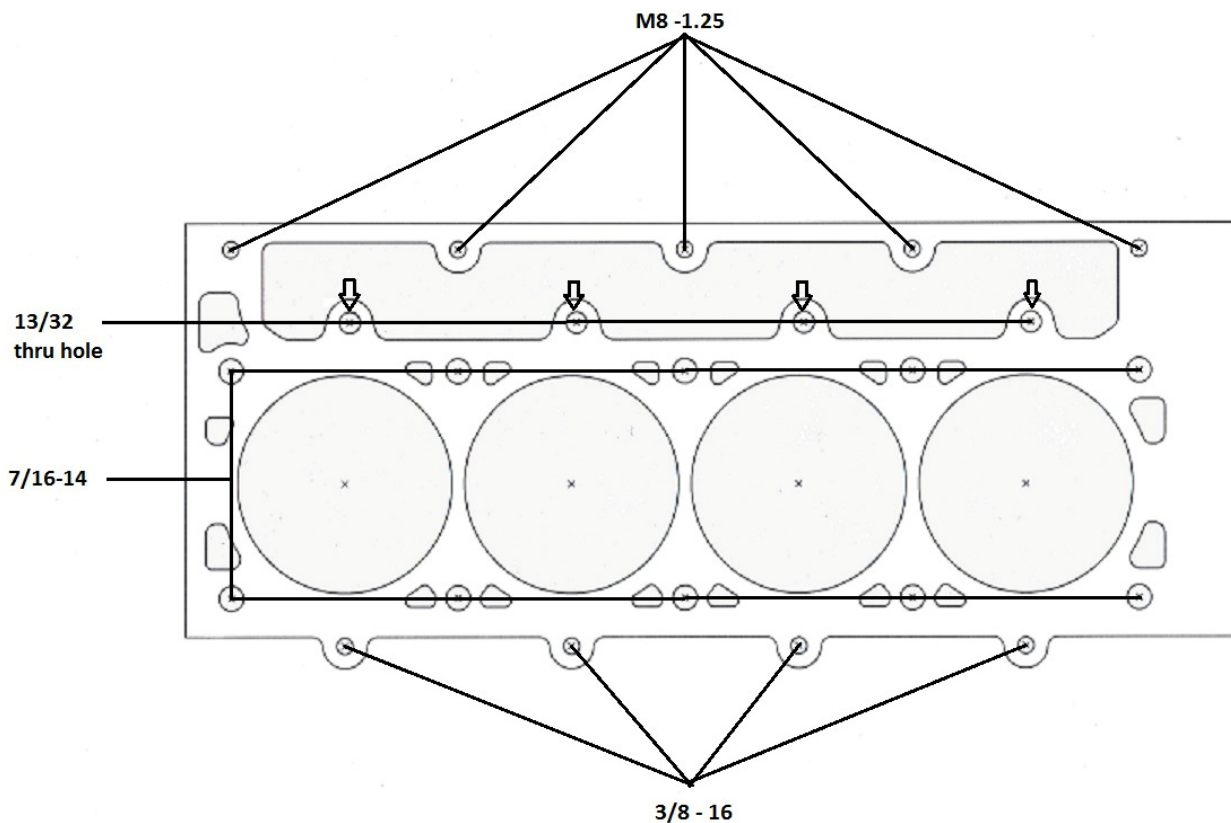
If lifter oiling is restricted, 1/8" pipe plug restrictors must be installed in the center crossovers just above the main oil galley. Our recommended starting point for restriction is .051" diameter with modified lifters. (See lifter mod sheet)

FOR ADDITIONAL INFORMATION SEE DIAGRAM OR CALL OUR DART TECHLINE AT 1-248-362-1188

NOTE: Due to variations in lifter sizes and clearance preferences, most of our Engine Builder customers prefer the lifter bores sized on the small end of the specification. Sometimes these bores will need to be lightly honed.

SPECIAL NOTE: with a multitude of different crank, rod and piston combinations available it is important to check clearance of all moving parts (especially crankshaft counterweight to block) before attempting any type of assembly.

Dart LS Next head bolt sizes: Have been upgraded to 7/16 -14 & 3/8-16 for increased strength and clamping when using high cylinder pressure applications. Dart and ARP will have individual kits available for specific head application.



We stock parts that are unique to this block:

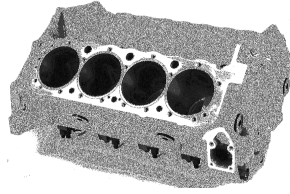
LS Next oil pan rail spacer kit
Head bolt kit for LS1 / LS6
Head Stud Sets (specify cylinder head type)
Special main bearings for LS Next
Cam retaining plate
55mm Babbitt cam bearings

62223001
66220010
Call for PN#
9-MS2321H or 9-MS2321HX
32226000
32210101-5

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Part Number #	31837211 – 31837211
Material:	Special RMR Iron Alloy & optional CGI upgrade
Bore:	4.000" or 4.125" w/ 4.200" max
Bore & stroke:	4.200" x 4.100" max
Cam bearing bore ID:	2.2998" – 2.3002"
Cam bearings:	55mm babbitt Dart PN# 32210101-5
Cam bearing O.S.	+0.010", +0.020", and +0.030" available
Cam bearing press:	.002" - .003"
Camshaft position:	Stock LS cam position
Camshaft to crank Ø	4.885"
Camshaft snout:	1.565" O.D
Cam Drive:	Accepts belt drive (*machining required) or stock chain drive.
Cam retaining plate:	Dart cam retaining plate / Cover. Dart PN# 32226000
Cam Plug snap ring:	N/A
Cubic inch:	454 cubic inch max
Cylinder Wall Thickness:	.275" @ 4.185" bore
Deck Height:	9.240" – 9.450" w / extended cylinder barrels .375" at bottom.
Deck Thickness:	5/8" (.625")
Fuel Pump:	Electric pump required
Fuel Pump Pushrod:	N/A
Freeze Plugs:	1.500" diameter Dart PN# 32820000B (Qty 6)
Lifter Bores:	.8427" - .8437" up to .937" keyed w/ 1.062" dia. bushing
Main bearing size:	2.558" – 2.559" Dart PN# 9-MS2321H or 9-MS2321HX
Main bearing bore:	2.7508" – 2.7512"
Main caps:	4 bolt billet steel w/splayed centers & center thrust
Oil system:	Low volume priority main oiling system w/ center crossover
Oil Pump:	Melling or Stock LS oil pump
Oil Filter:	Must use remote oil filter
Oil Pan:	Special: Moroso, Canton and Stef's or Moroso pan rail spacers
Rear Main Seal	Stock LS style with factory cover
Serial No.	Front passenger side below deck surface (XXXLSN)
Sleeve OD:	N/A
Sleeve O.S.	N/A
Sleeve thickness:	N/A
Sleeve Length:	N/A
Starter:	Factory LS starter w/ driver and passenger mounting options
Main bolts:	Inners – 7/16" x 3.600" Outer – 7/16" x 2.900"
Studs, heads:	Call for application
Studs holes, Head:	10 bolt pattern with 7/16", 3/8", and 8mm sizes
Stud length in block:	1.000" of thread depth
Timing chain/gears	Cloyes Part# 9-3658TX3
Timing Cover:	Factory LS cover and front seal 2005 w/ cam sensor provision
Torque Specs:	All torque specifications w/ CMD #3 High Pressure Lube 7/16" = 65 ft lbs 3/8" = 35 ft lbs 8mm = 22 ft lbs
Weight	227 lbs w/ main caps

IMPORTANT



This Block should be assembled only by experienced, professional engine builders.

INSPECTION

Upon receiving this block it should be thoroughly inspected for shipping damage.

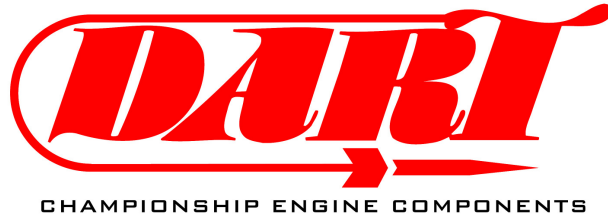
Prior to machining and assembly please inspect the following items:
Cylinder bores - Oil passages - Deck surfaces - All threads

MEASURING & MACHINING

- ❑ All initial measuring should be done before any machining has begun.
- ❑ Decks are CNC machined to standard deck heights. If you need a particular deck height always measure before machining.
- ❑ Main journals are finish line honed to the low to middle of the specification. They should be measured for your preference. If you have need for a different diameter you must realign hone this yourself.
- ❑ Crankshaft & rod clearance should always be checked before any machining is started. You need .060" clearance for rotating counterweights and rods.
- ❑ Due to variations in OD dimensions of the numerous lifter manufacturers, lifter bores are finish honed on the tight side of the tolerance to leave room for lifters that are larger than the standard.

WASHING

- ❑ Final washing should be very thorough, paying particular attention to all oil galleys. Use hot soapy water and rinse with hot water first, followed by cold water which helps reduce rust.



Recommended honing procedures for Sunnen SV-10

- **Recommended Coolant:** SCC-605 water base 5.5 to 7.0%

- **Speed and Feed:** Setting # 2

		<u>Spindle:</u>	<u>Stroke:</u>
• Speed:	Rough:	320	80
	Finish:	185	80

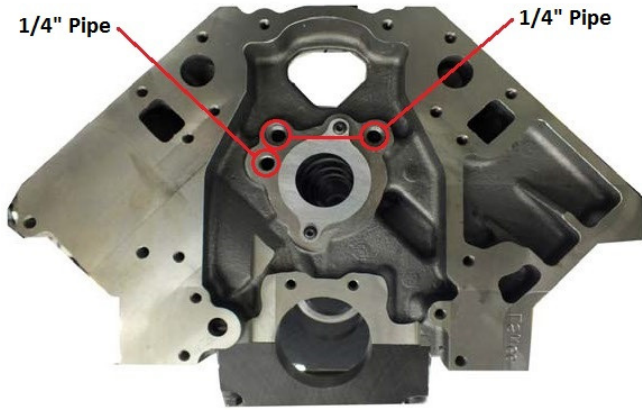
- **Cross hatch / Finish:** 16 – 28

- **Honing Procedure:**

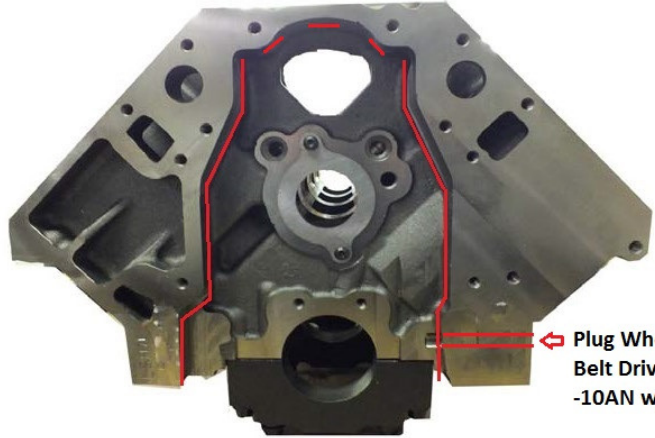
- 1.) **Rough:** .0025” - .003” **Diamond D-126-64.112**
- 2.) **To size:** 0.000” **Diamond D-76-95.774**
- 3.) **Finish:** 6 strokes **Diamond D-30-85.774**
- 4.) **Brush:** 1 stroke **Brush**

- **Note:** Due to a multitude of different ring types, material and applications. We recommend that you contact the piston ring manufacture for specific honing procedures, and surface finish specifications. If you have any questions please feel free to call our technical department Monday through Friday at 1-248-362-1188.

LSNEXT

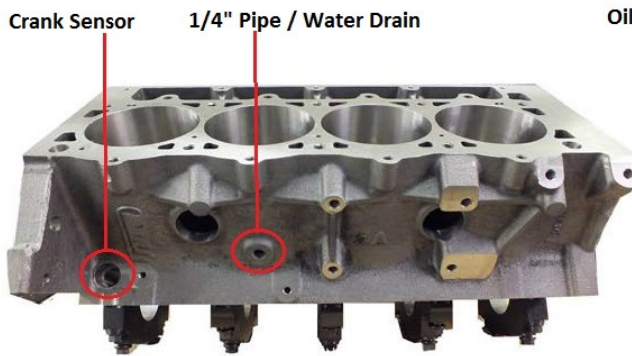


Stock LS Next Front

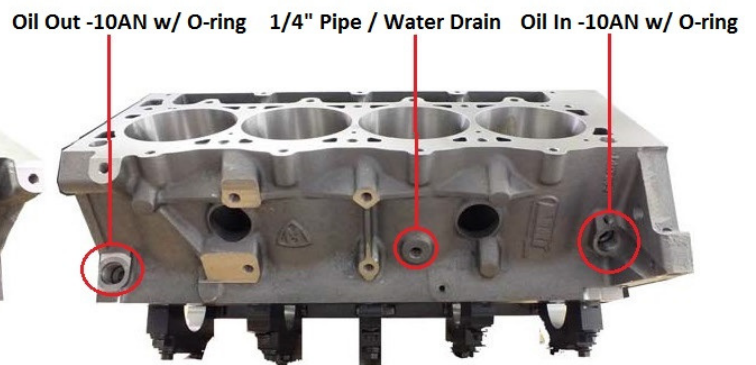


Machined for Jesel Belt Drive

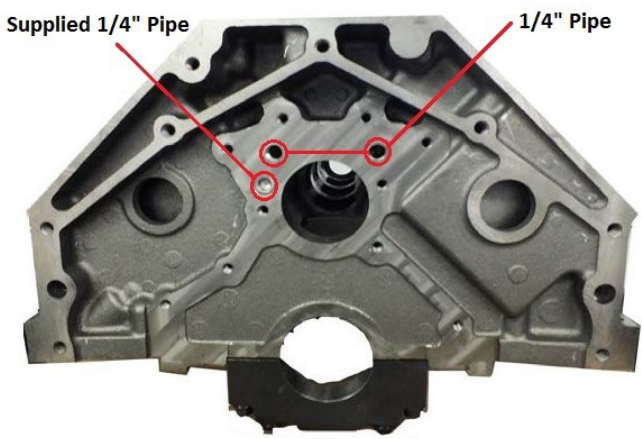
Plug When Jesel Belt Drive is Used
-10AN w/ O-ring



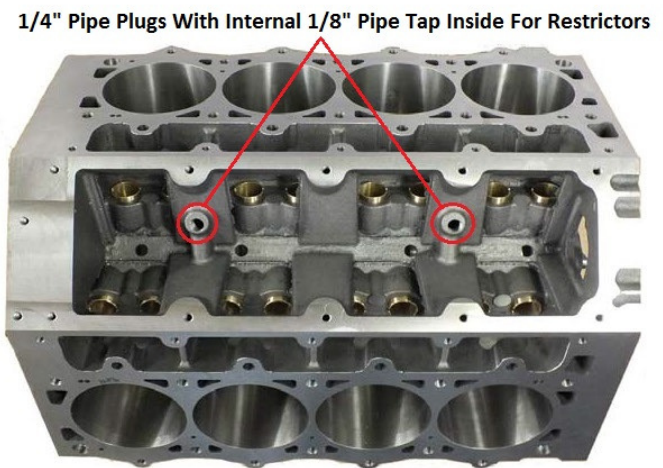
LS Next Passenger Side View



LS Next Drivers Side View



LS Next Rear View



LS Next Top View