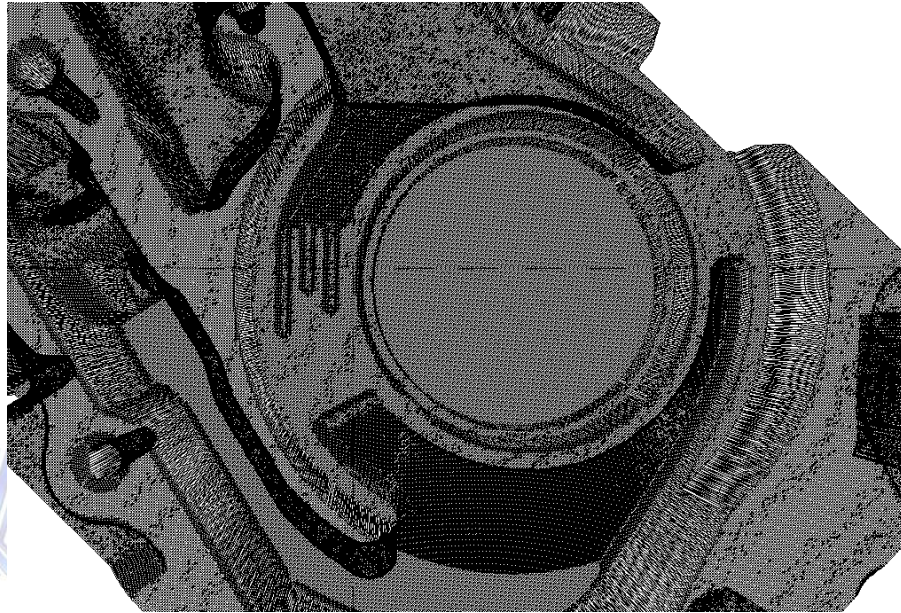




PERFORMANCE AUTOMOTIVE LUBRICATION SYSTEMS



BILLET AND HIGH PERFORMANCE OILING SYSTEMS

- > 16 YEARS OF EXCELLENCE IN THE RACING INDUSTRY
- > BILLET OIL PUMP GEARS MACHINED TO EXACTING TOLERANCES
- > ASSEMBLED AND BLUE PRINTED OIL PUMPS FOR NO MESS INSTALLATIONS
- > HIGH FLOW AND HIGH ENDURANCE ASSEMBLIES FOR THE MOST EXTREME BUILDS
- > PROPRIETARY TECHNOLOGY TO GIVE YOU THE CUTTING-EDGE ADVANTAGE

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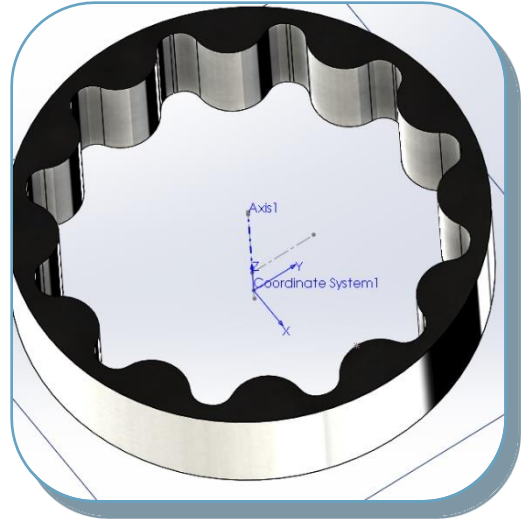
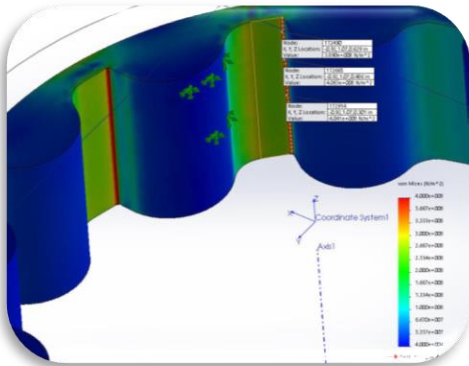
Product Directory



About Boundary

IN HOUSE DESIGN

Every Boundary oil pump component is designed in house with our own customized profiles for maximum oil pressure and strength.



IN HOUSE MANUFACTURING

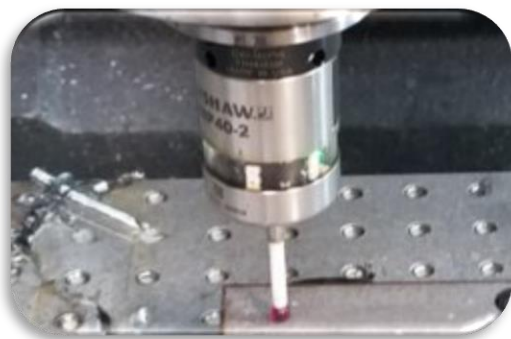
Unlike our competitors we also manufacture every oil pump in house. This means lower wait time for product, lower cost manufacturing, quicker turn around on prototyping, and of course unbeatable quality control.

Pump gears feature ground surface for maximum flatness and seal

Digital Quality Control on all products

Individually Hand Inspected

Machine and Hand Deburr processes



ADVANCED DIGITAL QUALITY CONTROL

Boundary utilizes the highest level of digital measuring systems to ensure maximum performance!

Oil Pump Gears



Billet Oil Pump Gears

- Machined from Chromoly Billets

- Each unit inspected electronically and by hand
- Machine de-burred and touch up de-bur by hand
- Inner and Outer Individually numbered and logged into our database
- Ground width sections for maximum seal
- Available with MartenWear surfaces
- Available with Mirror finished to Ra 1.0µin with complete high pressure hardening
- Available with our patent pending Radial porting

Boundary Proprietary Technology

- We pride ourselves on developing and producing all our products completely in house. Doing this we achieve level of innovation and quality not seen elsewhere in the market.

MartenWear

- Used in applications that see consistent use above 8000 RPM or very high horsepower applications
- The MartenWear surface heat-treatment provides an incredibly hard and wear resistant surface with a low friction coefficient
- This is a heat treatment with a deep case depth, so it cannot wear off like "coatings"
- Treatment does not affect the core material keeping it highly resistant to large debris impacts



MARTEN WEAR SURFACES ARE SHOWN IN BLACK

ColdFlow Surface Finish

- This high surface finish has the following benefits to performance:
 - Makes the pump seal better for more pressure and faster priming
 - Makes the pump more resistant to high RPM wear
 - Makes the pump more efficient for less horsepower loss
 - Makes the surface harder for a longer lasting gear
 - Reduces heat in the oil system
- A unique surface finish process that works under massive pressures to create a very high surface finish with a harder more durable exterior.
- Superior to technologies that just grind away at the material, which exposes softer weaker material underneath, our technology polishes and hardens at the same time.
- We achieve surface finishes at roughly 1.0µin RA or a surface **16 times** smoother than competing products.



REFLECTIONS OF COLD FLOW FINISH SHOWN ABOVE

High RPM Gerotor Porting – Patent Pending

- Increases flow area for the pump on intake and exhaust
 - This larger flow area will increase flow under mid-range and high RPM
- Prevents high RPM pressure drop off
 - By reducing the effect of cavitation, the pump reduces oil foaming and wear on surfaces
- More Durable
 - Provides a relief for large debris to move into instead of being crushed by the assembly
 - Can provide critical seconds to shut down the engine under oil pressure in the event of a catastrophic engine failure
- Reduced Mass
 - Given the large sizes of the relief, the gerotor assembly will be lighter.



HIGH RPM GEROTOR PORTING

Oil Pump Assemblies



Assembled Oil Pumps (Stage 1 \ Level 1)

- Assembled and pre-lubricated with Boundary Billet Oil Pump Gears
- Custom oil pressure relief based on your requirement
- Blueprinted

High Flow Oil Pumps (Stage 2 \ Level 2)

- Everything above plus
- Custom machined for higher flowing oil pump gear

High Flow EnduroRace Pumps (Stage 3 \ Level 3)

- Everything above plus
- Reinforced aluminum housing with steel components for long wearing and ultimate strength

Anti-Cavitation \ High Flow Billet Back Plate



Anti-Cavitation \ High Flow Billet Back Plates

- Super flat triple flat ground surface prevents air intake and leak blow by on the pump
- Deep pocketing slows down flow and allows it to enter the gerotor more easily preventing cavitation and air bubbles.
- Billet steel design reduces deflection over aluminum and billet aluminum

Precision Billet Timing Sprockets



 **BOUNDARY**
P U M P D I V I S I O N

Billet Crankshaft Sprockets for High Performance Timing Systems

- Sprockets feature all 4340 billet construction with maximum Rc58+ Hardening
- Tight bore and keyway fitment reduces stress and increases timing accuracy
- Custom designed inner ring nearly doubles the strength of the OEM design.

Product Directory

FORD - Modular Motor

MINIMUM ADVERTISED PRICE	P/N	Description
MOD MOTOR	MM-OPG-2V	Billet Oil Pump Gear Ford Mod Motor V8 2V 4.6L 99-00 Original Housing Only
	MM-OPG-3V	Billet Oil Pump Gear Ford Mod Motor \ Shelby GT500 V8 3V 4.6L 5.4L 2005-2014
	MM-OPG-3V-M	Billet Oil Pump Gear Ford Mod Motor \ Shelby GT500 V8 3V 4.6L 5.4L 2005-2014 MartenWear Treated
	MM-OPG-Raptor	Billet Oil Pump Gear Ford Mod Motor V8 6.2L Raptor 2011-2014
	MM-OPG-4V	Billet Oil Pump Gear Ford Mod Motor V8 4V 2001-2004
	MM-S1	Pump Assembly Ford Mod Motor V8 ALL TYPES 1999-2015 High Flow Billet Gear OEM Aluminum Backplate
	MM-S1-BBP	Pump Assembly Ford Mod Motor V8 ALL TYPES 1999-2015 High Flow Billet Gear Billet Backplate
	MM-S2	Pump Assembly Ford Mod Motor V8 ALL TYPES 1999-2015 Race Flow Billet Vane Ported MartenWear Treated Gear Billet Steel Backplate
	MM-SP-GT500	Billet Crankshaft Timing Sprocket Ford Mod Motor V8 GT500 2007-2014
	MM-BBP-3V	Billet Back Plate Ford Mod Motor V8 3V And GT500 2005-2014 Steel Anti-cavitation High Flow
	MM-BBP-4V	Billet Back Plate Ford Mod Motor V8 4V And 2V Replacement Housing 1999-2005 Steel Anti-cavitation High Flow
	MM-PT	Pickup Tube Ford Mod Motor V8 ALL TYPES 1999-2014 15/16th Diameter OEM Replacement

FORD – Coyote Motor

COYOTE MOTOR	CM-OPG-F150	Billet Oil Pump Gear Ford Coyote V8 F150 2011-2014 And 2018-Up
	CM-OPG-Mustang	Billet Oil Pump Gear Ford Coyote V8 Mustang AND GT350 2011-UP
	CM-OPG-Mustang-M	Billet Oil Pump Gear Ford Coyote V8 Mustang AND GT350 2011-UP MartenWear Treated
	CM-SI	Pump Assembly Ford Coyote V8 Mustang F150 2011-2017 Billet Gear
	CM-SI-BBP	Pump Assembly Ford Coyote V8 Mustang F150 2011-2017 Billet Gear Billet Backplate
	CM-SI-R2	Pump Assembly Ford Coyote V8 ALL TYPES 2015-UP GT350 2018-UP GT And F150 Billet Gear
	CM-SI-R2-BBP	Pump Assembly Ford Coyote V8 ALL TYPES 2015-UP GT350 2018-UP GT And F150 Billet Gear Billet Backplate
	CM-BBP	Billet Pump Plate Ford Coyote V8 ALL TYPES 2011-UP Steel Anti-cavitation High Flow
	CM-SP-II	Billet Crankshaft Timing Sprocket Ford Coyote V8 ALL TYPES 2011-2014
	CM-SP-II-LR	Billet Crankshaft Timing Sprocket Ford Coyote V8 ALL TYPES 2011-2014 Large Radius for Billet Crankshaft
	CM-SP-I5	Billet Crankshaft Timing Sprocket Ford Coyote V8 ALL TYPES 2015-Up
	CM-SP-I5-LR	Billet Crankshaft Timing Sprocket Ford Coyote V8 ALL TYPES 2015-Up Large Radius for Billet Crankshaft
	CM-SP-X-P	Billet Crankshaft Timing Sprocket Ford Coyote V8 ALL TYPES 2015-Up OPTION FOR ANY SPROCKET MUST BUY SPROCKET Double Pin Keyway
	CM-PT	Pickup Tube Ford Coyote V8 ALL TYPES 2011-2017 OEM Replacement

FORD V6 \ I4 \ I6

MINIMUM ADVERTISED PRICE	P/N	Description
ECOBOOST	CYEB-SP	Billet Crankshaft Timing Sprocket Ford Cyclone Ecoboost V6 2.7L 3.5L 3.7L 2015-2017
	CYEB-OPG	Billet Oil Pump Gear Ford Cyclone Ecoboost V6 2.7L 3.5L 3.7L 2015-2017
	CYEB-SI	Pump Assembly Ford Cyclone Ecoboost V6 2.7L 3.5L 3.7L 2015-2017 Billet Gear
ZETEC	ZSG-SI	Pump Assembly Ford Zetec I4 2.0L 1996-2004 High Flow Billet Gear
BARRA	BA-OPG	Billet Oil Pump Gear Ford Barra XR6 2002-2016
	BA-BBP	Billet Back Plate Ford Barra XR6 2002-2016 Steel Anti-cavitation High Flow
DURATEC	DURATEC-S2	Pump Assembly Ford Duratec V6 2.5L 3.0L 1993-2012 High Flow Billet Gear

MAZDA \ FORD ENGINES

MINIMUM ADVERTISED PRICE	P/N	Description
BP	BP-DPG-NON-VVT	Billet Oil Pump Gear Ford Mazda BP I4 NON-VVT 91.5-00 Escort GT Mazda Miata
	BP-DPG-VVT	Billet Oil Pump Gear Ford Mazda BP I4 VVT 01-05
	BP-BBP	Billet Back Plate Ford Mazda BP I4 ALL TYPES 91.5-05 Escort GT Mazda Miata
	BP-S1	Pump Assembly Ford Mazda BP I4 1.6L AND 1.8L NON-VVT 91.5-00 Escort GT Mazda Miata Billet Gear
	BP-S2	Pump Assembly Ford Mazda BP I4 ALL TYPES 91.5-05 Escort GT Mazda Miata Billet Gear High Flow
	BP-S3	Pump Assembly Ford Mazda BP I4 ALL TYPES 91.5-05 Escort GT Mazda Miata Billet Gear Billet Backplate Race Flow
	BP-S2-SNC	Pump Assembly Ford Mazda BP I4 1.6L 89-91.5 Escort And Mazda Miata SNC Billet Gear High Flow
	BP-SH1	Shims Ford Mazda BP I4 ALL TYPES 89-2005 Single Shim 6 PSI
	BP-SH2	Shims Ford Mazda BP I4 ALL TYPES 89-2005 Single Shim 12 PSI
	BP-SH3	Shims Ford Mazda BP I4 ALL TYPES 89-2005 Single Shim 18 PSI
	BP-SH4	Shims Ford Mazda BP I4 ALL TYPES 89-2005 Single Shim 24 PSI
	BP-SH5	Shims Ford Mazda BP I4 ALL TYPES 89-2005 Single Shim 30 PSI
	BP-SHK	Shims Ford Mazda BP I4 ALL TYPES 89-2005 SHIM KIT 6,12,18,24,30 PSI with retaining pin
FS\FP	FSFP-S2	Pump Assembly Mazda Ford Kia FS FP I4 1.8L-2.0L 1993-2006 Billet Gear Vane Ported High Flow MartenWear Treated
KLDE \ KLZE	KLDE-S2	Pump Assembly Ford Mazda KLDE KLZE V6 2.5L 1992-1997 Billet Gear Vane Ported High Flow MartenWear Treated

DODGE

MINIMUM ADVERTISED PRICE	P/N	Description
A853	A853-OPG	Billet Oil Pump Gear Dodge SRT4 A853 I4 2.4L Billet Gear High Flow
	A853-SI	Pump Assembly Dodge SRT4 A853 I4 2.4L Billet Gear High Flow

NISSAN

MINIMUM ADVERTISED PRICE	P/N	Description
VQ-VHR	VQ-OPG-VHR	Billet Oil Pump Gear Nissan VQ VHR 3.5L 3.7L
	VQ-SI-VHR	Pump Assembly Nissan VQ VHR 3.5L 3.7L Billet Gear High Flow
	VQ-SI-VHR-BBP	Pump Assembly Nissan VQ VHR 3.5L 3.7L Billet Gear High Flow Billet Steel Back Plate
	VQ-BBP-VHR	Billet Back Plate Nissan VQ VHR 3.5L 3.7L Steel Anti-cavitation High Flow
VQ-DE	VQ-OPG-DE	Billet Oil Pump Gear Nissan VQ DE 3.5L
	VQ-S2-DE	Pump Assembly Nissan VQ DE 3.5L Billet Gear High Flow
	VQ-S2-DE-BBP	Pump Assembly Nissan VQ DE 3.5L Billet Gear High Flow Billet Steel Back Plate
QR-DE	QR-OPG-DE	Billet Oil Pump Gear Nissan VQ QR DE 2.5L
	QR-SP	Billet Crankshaft Timing Sprocket Nissan VQ QR DE 2.5L
VK56	VK56-OPG	Billet Oil Pump Gear Nissan VK56 VD DE 5.6L
	VK56-SP	Billet Crankshaft Timing Sprocket Nissan VK56 VD DE 5.6L REQUIRES QTY:2

Hyundai

MINIMUM ADVERTISED PRICE	P/N	Description
	G4GF-OPG	Billet Oil Pump Gear Hyundai Beta G4GF 2.0L High Flow

Honda

MINIMUM ADVERTISED PRICE	P/N	Description
	H22-DPG	Billet Oil Pump Gear Honda H22 2.2L
	H22-BBP	Billet Back Plate Honda H22 2.2L Steel Anti-cavitation High Flow

Subaru

MINIMUM ADVERTISED PRICE	P/N	Description
	EJ25-DPG	Billet Oil Pump Gear Subaru EJ25 2.5L
	EJ25-S2	Pump Assembly Subaru EJ25 2.5L 14mm Billet Gear Vane Ported MartenWear Treated Steel Billet Back Plate
	EJ25-S1	Pump Assembly Subaru EJ25 2.5L 12mm Billet Gear
	EJ25-BBP-12mm	Billet Back Plate Subaru EJ25 2.5L 12mm Steel Anti-cavitation High Flow
	EJ25-BBP-10mm	Billet Back Plate Subaru EJ25 2.5L 10mm Steel Anti-cavitation High Flow