

# ***HASTINGS***

***PERFORMANCE RINGS***





# **HASTINGS**<sup>®</sup>

**PERFORMANCE RINGS**

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## STAINLESS STEEL NITRIDE (SN)

The SN series is the ultimate ring package for the highest performing applications and is a must for big power adders. Stainless steel top rings with gas nitriding delivers excellent wear and scuff resistance and ability to withstand elevated combustion temperatures. Sets contain either ductile napier or conventional reverse twist style second rings. 3pc Flex Vent oil assembly with chrome rails will be found in this top-of-the-line series.

## STEEL MOLY (SM)

The SM series is an excellent ring package containing alloyed steel top rings with inlaid plasma moly coating. Steel top rings offer increased durability over ductile or cast iron due to its higher strength and heat resistance. Steel rings allow for thinner cross sections which reduces mass and allows for better ring to cylinder bore conformability increasing ring seal and horsepower output. Plasma moly coating provides great scuff and thermal resistance to meet the demands of performance engines. The second ring consist of either ductile napier or conventional reverse twist style. 3pc Flex Vent oil assembly with chrome rails will be found in this premium series.

## STEEL CHROME (SC)

The SC series is an excellent ring package containing alloyed steel top rings with chromium plating on the running face. These steel top rings provided all the same benefits previously mentioned with addition of chrome coating which is very wear resistance due to it's high hardness. Sets will contain second rings with either conventional scraper or reverse twist style. 3pc Flex Vent oil assembly with chrome rails will be found in this series.



## DUCTILE MOLY (2M)

The 2M series continues to be the best-selling ring series in the offering and for good reason. The top rings are made with high tensile ductile iron and contain topside ID bevel for increased side sealing along with inlaid plasma moly coating. These sets come with either ductile napier or conventional reverse twist style second rings. 3pc Flex Vent oil assembly with chrome rails will come in these best-selling sets.

## SNH

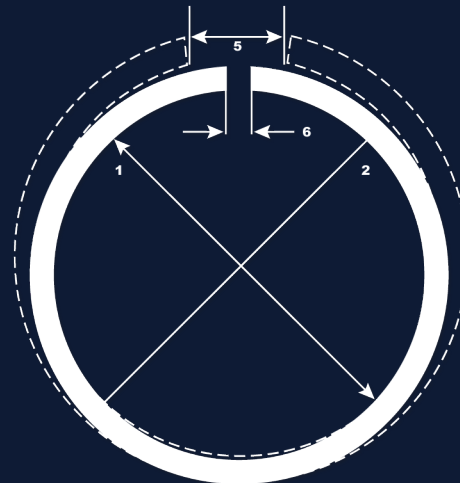
The SNH series is designed for aftermarket performance pistons in the sport compact performance market utilizing 1.0 x 1.2 x 2.8 ring groove configurations. This series provides the same features and benefits as the SN series with addition of Nitride Flex Vent technology for addition wear resistance in high power sport compact applications.



# NOMENCLATURE

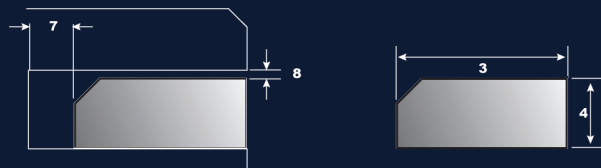
## Engineering

1. Inside Diameter: Inside diameter (ID) of the ring when fitted (installed) to the cylinder bore diameter
2. Outside Diameter: Outside diameter (OD) of the ring when fitted (installed) to the cylinder bore diameter
3. Radial Wall: Ring width in the radial (horizontal) direction, ID to OD dimension
4. Axial Height: Ring width (also referred to as thickness) in the axial (vertical) direction, from top-side to bottom-side of ring



## Clearances

5. End Gap: Gap clearance of the ring when fitted (installed) to the bore diameter
6. Free Gap: Uncompressed (uninstalled) end gap clearance of the ring
7. Back Clearance: When installed, the distance in the piston groove between the ring ID and the back of the ring-groove of the piston .005" minimum required
8. Side Clearance: When installed, the distance between the ring axial height and the piston's ring-groove width .001"-.003" recommended



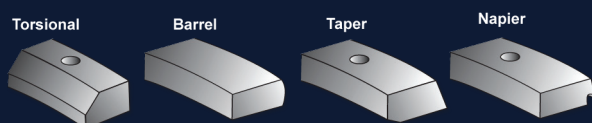
## Ring Shapes

**Torsional:** Compression ring with ID bevel; causes twisting action; aids in sealing

**Barrel Face:** The curved face (OD) of a ring that makes contact with the cylinder wall; aids in sealing

**Taper Face:** The angled face of a ring

**Napier:** Hook-shaped design on the lower face of some 2nd compression rings; aids in oil control



## Ring Terminology

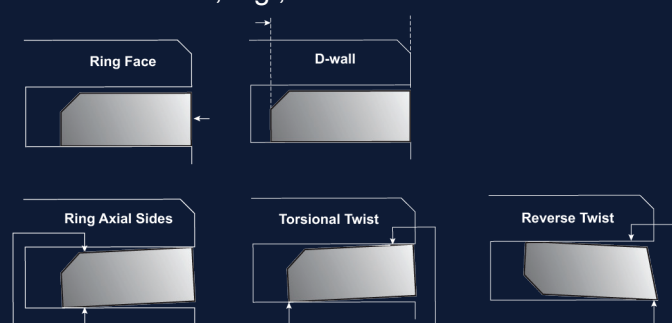
**Ring Face:** Front face (OD) of the ring that makes contact with the cylinder wall

**Ring Side:** The top and bottom (axial) surfaces of the ring

**Positive Twist:** An asymmetrical change (created by an ID bevel on top ID of ring) used in a top ring cross section that causes it to twist in an upward direction; it aids ring sealing

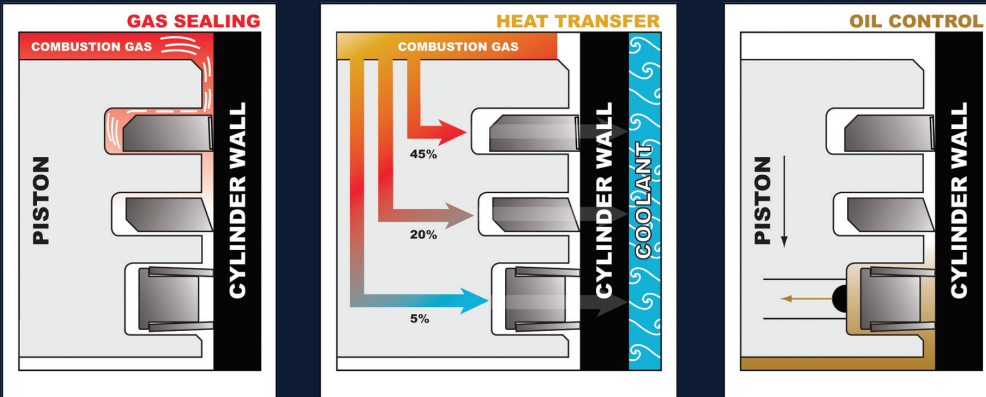
**Reverse Twist:** An asymmetrical change (created by an ID bevel on bottom ID of ring) used in a 2nd ring cross section that causes it to twist downward; it enhances oil scraping properties

**D-Wall:** The Society of Automotive Engineers (S.A.E.) specification that is used to calculate the radial width of a standard automotive piston ring using the following formula: bore diameter / 22 = radial thickness, e.g., 4.125" / 22 = .188".



# PISTON RING FUNCTIONS

Piston rings typically come in sets of three rings, starting with the 1st or top-groove compression ring, followed by the second-groove ring and then the oil ring. Their function is to seal off combustion gases, aid in the heat transfer to the cylinder wall, and both lubricate and scrape down oil from the cylinder wall. The top ring serves to seal off the majority of the combustion gases and dissipate most of the heat, while the second ring helps with both of those functions and also They are to scrape oil from the cylinder walls toward the oil ring. The oil ring provides most of the oil control, metering oil along the cylinder walls on the up-stroke and scraping oil from the cylinder walls on the down stroke.



## Top Groove Ring

Function: Top compression rings seal against the cylinder wall to trap combustion gases and increase the combustion pressure and efficiency. They also play a major role in the heat transfer process from the piston to cylinder wall and out through the engine block.

Materials: Ductile Iron; Alloy Steel; Stainless Steel

Coatings: Plasma Molybdenum "Moly"; Chrome; Gas-Nitride

## 2nd Groove Ring

Function: Second-groove compression rings seal off combustion gases, aid in the heat transfer to the cylinder wall, and both lubricate and scrape down oil from the cylinder wall toward the oil ring to prevent oil from reaching the combustion chamber, thereby often being called a scraper ring. They also provide a second seal for trapping combustion gases, as well as aiding in heat transfer.

Materials: Grey Cast Iron; Ductile Iron

Coatings: Phosphate

## Oil Ring

Function: Oil rings distribute and regulate (meter) oil within the cylinder wall and help scrape it back into the crankcase. This is necessary to keep the cylinder wall lubricated with a thin layer of the cooler replacement oil and to lower the friction between the piston and the cylinder thus regulating heat buildup.

Materials: 201 Stainless Steel expander; 1070 Segmental Steel or Stainless Steel Rails

Coatings: Chrome; Nitride

# FILE FIT END GAPS

A common practice in performance applications is file fitting piston end gaps to a precise end gap using slightly oversized rings. Most Performance Ring sets are available in file fit (+.005") oversizes. The end gap refers to the clearance between the two ends of the piston ring when installed into the cylinder bore. File fitting end gaps is best done with a professional ring grinding tool, however if filing by hand always file from the outside diameter towards the inside diameter to avoid chipping of the face coating. It is recommended to file fit equal amounts from each side of the gap while keeping the gap ends square and parallel.

The recommended end gap is determined by the bore size and the application which the ring set will be utilized. Below is a chart which contains the recommended end gap factor. To use this chart, multiply the bore size by the ring end gap factor to obtain the minimum end gap which should be achieved. Example: 4.000" bore street engine with cast piston the top ring end gap factor is .004", thus 4.000" x .004" = .016" minimum end gap. It should be observed that for every .001" increase in bore diameter the ring end gap is increased by .003".

Application	TOP RING			2 <sup>ND</sup> RING	OIL RAILS
	Cast / Forged Piston	Non UEM Hypereutectic Piston	UEM Hypereutectic Piston	All Pistons	All Pistons
Street	Bore x .004" MIN	Bore x .005" MIN	Bore x .0065" MIN	Bore x .0045" MIN	.015" MIN
Street/Strip	Bore x .0045" MIN	Bore X .0055" MIN	Bore X .0065" MIN	Bore x .005" MIN	
Circle Track/Drag	Bore x .005" MIN	Bore x .006" MIN	Bore x .007" MIN	Bore x .0055" MIN	
Forced Induction - up to 15 lbs	Bore x .006" MIN	Bore x .007" MIN	Bore x .0085" MIN	Bore x .0065" MIN	
Forced Induction - over 15 lbs	Bore x .007" MIN	Bore x .008" MIN	Bore x .009" MIN	Bore x .0075" MIN	
Nitrous - Up to 200 Hp	Bore x .006" MIN	Bore x .007" MIN	Bore x .0085" MIN	Bore x .0065" MIN	
Nitrous - Over 200 Hp	Bore x .007" MIN	Bore x .008" MIN	Bore x .009" MIN	Bore x .0075" MIN	

# PLASTIGAGE CHECKS BEARING CLEARANCES

Check bearing clearances the modern, fast, accurate way with Hastings Plastigages. Plastigages are a special extruded plastic thread with accurate controlled "crush" properties. They are extremely handy for checking main and connecting rod bearing clearances, oil pump cover-to-gear clearances, and for many other clearance checks.

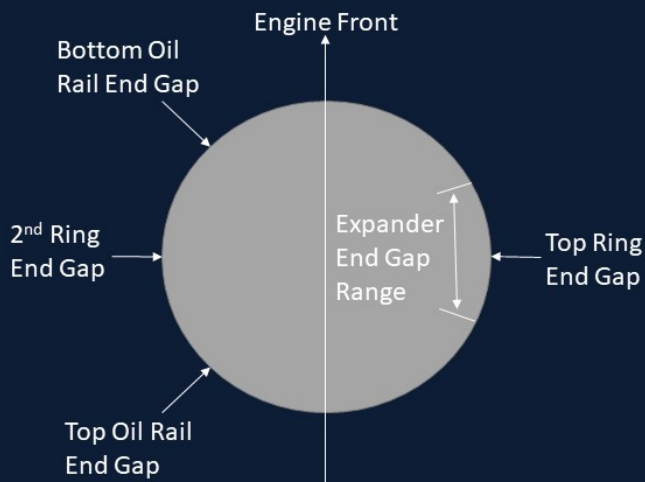
Each box of Plastigages contains 12 strips in individually calibrated envelopes, usually enough to check 12 engines. Available in four clearance ranges.

Part No.	Size	Envelope Color
HPG1	.001 to .003" – .025 to .076 mm	Green
HPR1	.002 to .006" – .051 to .152mm	Red
HPB1	.004 to .009" – .102 to .229mm	Blue
HPY1	.009 to .020" – .23 to .51mm	Yellow





# END GAP LOCATION



# BORING AND HONING

The practice of boring and honing has become a very complex practice for modern performance engines. The following are generic guidelines, however any further questions related to boring or honing should be consulted with boring and honing professionals.

## Material Stock Removal

- .003" with 80 – 100 grit stone
- .0015" with 280 – 320 grit stone
- .0005" with 400 – 600 grit stone

If surface finish can be measured using a profilometer the recommend values for generic performance applications is as follows:

- Reduced Peak Height (Rpk): 10 – 15  $\mu$ "
- Core Roughness Depth (Rk): 35 – 45  $\mu$ "
- Reduced Valley Depth (Rvk): 45 – 55  $\mu$ "
- Roughness Average (Ra): 15 – 20  $\mu$ "

For high end performance, big boost applications:

- Reduced Peak Height (Rpk): 10 – 20  $\mu$ "
- Core Roughness Depth (Rk): 50 – 60  $\mu$ "
- Reduced Valley Depth (Rvk): 60 – 70  $\mu$ "

# ENGINE BREAK-IN

It is highly recommended that specific oil formulated for break-in is used as it has necessary properties to help aid in proper break-in of piston rings and other components. Synthetic oil is NOT recommended for initial break-in period as it contains properties that prevent wear and combat the break-in of components. If break-in oil is not readily available a conventional oil can be used.

During break-in the engine should be ran moderate to hard with no long periods of idling. For an engine to have a long and healthy life it needs to wear in properly during the early stages which will only happen if ran with moderate to heavy loads. This action will thrust the piston rings against the cylinder wall from increased pressure to aid in accelerated ring seating. After a few hundred miles the engine should be fully broken in. Used oil should be drained and filter replaced. New oil can be conventional or synthetic formulation.

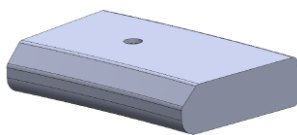
Top	2nd	Oil	Set #	Page #	Top	2nd	Oil	Set #	Page #
		2.953"					4.005"		
1.20mm	1.50mm	2.80mm	SC5558	11	1/16"	1/16"	3/16"	2M5525	15
		3.189"					4.063"		
1/16"	5/64"	5/32"	2M5545	12	5/64"	5/64"	3/16"	2M5511	15
1.00mm	1.20mm	2.80mm	SC5572	11			4.093"		
		3.307"			5/64"	5/64"	3/16"	2M5512	15
1.00mm	1.20mm	2.80mm	SC8513	11			4.120"		
		3.445"			1/16"	1/16"	3/16"	2M5590	15
1.20mm	1.20mm	3.00mm	SC5556	11			4.125"		
		3.551"			.043"	.043"	3.00mm	SM5593	21
1.50mm	1.50mm	3.00mm	SN5582	23	.043"	.043"	3.00mm	SM8550	21
		3.736"			.043"	1/16"	3/16"	SM8547	21
1/16"	1/16"	3/16"	2M5567	12	.043"	1/16"	3/16"	SM8557	21
5/64"	5/64"	3/16"	2M5548	12	1.20mm	1.20mm	3.00mm	SN9050	24
		3.780"			1.50mm	1.50mm	3.00mm	2M5581	15
1.20mm	1.20mm	3.00mm	SM5565	20	1.50mm	1.50mm	3.00mm	2M8505	15
1.20mm	1.20mm	3.00mm	SN9030	23	1/16"	1/16"	3.00mm	2M5539	16
1.50mm	1.50mm	3.00mm	SM8531	20	1/16"	1/16"	1/8"	2M5501	16
1.50mm	1.50mm	3.00mm	SN8531	20	1/16"	1/16"	3/16"	2M5510	16
1/16"	1/16"	3/16"	2M5527	12	1/16"	1/16"	3/16"	2M5529	16
		3.875"			1/16"	1/16"	3/16"	2M8552	16
1/16"	1/16"	1/8"	2M5522	12	1/16"	1/16"	3/16"	2M8559	16
		3.898"			5/64"	5/64"	3/16"	2M5513	17
1.20mm	1.20mm	3.00mm	SN9035	23			4.150"		
1.20mm	1.50mm	3.00mm	SN9055	23	1/16"	1/16"	3/16"	2M5543	17
1.50mm	1.50mm	3.00mm	SM8555	20			4.165"		
		3.910"			1/16"	1/16"	3/16"	2M5542	17
1/16"	1/16"	3/16"	2M5575	12			4.233"		
		3.917"			1/16"	1/16"	3/16"	2M5526	17
1.20mm	1.20mm	3.00mm	SN9040	23			4.250"		
1.20mm	1.50mm	3.00mm	SN9060	23	.043"	.043"	3.00mm	SM5597	22
1.50mm	1.50mm	3.00mm	SM8560	20	.043"	1/16"	3/16"	SM8567	22
		4.000"			1.50mm	1.50mm	3.00mm	2M8510	
.043"	.043"	3.00mm	SM5587	20	1.50mm	1.50mm	3.00mm	2M8569	17
.043"	.043"	3.00mm	SM8556	20	1/16"	1/16"	3/16"	2M5515	17
.043"	1/16"	3/16"	SM8527	20	1/16"	1/16"	3/16"	2M5519	17
.043"	1/16"	3/16"	SM8537	21	1/16"	1/16"	3/16"	2M8562	18
1.20mm	1.20mm	3.00mm	SN9045	24	5/64"	5/64"	3/16"	2M5514	18
1.20mm	1.50mm	3.00mm	SN9065	24	5/64"	5/64"	3/16"	2M5518	18
1.50mm	1.50mm	3.00mm	2M5540	12			4.320"		
1.50mm	1.50mm	3.00mm	2M8521	13	1/16"	1/16"	3/16"	2M5520	18
1.50mm	1.50mm	3.00mm	SM8565	21	1/16"	1/16"	3/16"	2M5528	18
1.50mm	1.50mm	4.00mm	2M5535	13			4.360"		
1/16"	1/16"	3.00mm	2M5538	13	1/16"	1/16"	3/16"	2M5536	18
1/16"	1/16"	1/8"	2M5521	13			4.466"		
1/16"	1/16"	1/8"	2M8571	13	1/16"	1/16"	3/16"	2M5537	19
1/16"	1/16"	3/16"	2M5505	14			4.500"		
1/16"	1/16"	3/16"	2M5523	18	.043"	.043"	3.00mm	SM8582	22
1/16"	1/16"	3/16"	2M8542	14	.043"	1/16"	3.00mm	SM8592	22
1/16"	1/16"	3/16"	2M8543	14	1.50mm	1.50mm	3.00mm	2M8525	19
5/64"	5/64"	3/16"	2M5504	14	1.50mm	1.50mm	3.00mm	2M8535	19
5/64"	5/64"	3/16"	2M5508	15	1/16"	1/16"	3/16"	2M5589	19
					1/16"	1/16"	3/16"	2M5596	19
					1/16"	1/16"	3/16"	2M8588	19
					1/16"	1/16"	3/16"	2M8594	19

# SNH SERIES - 1.0 x 1.2 x 2.8

Set No	Cyl	Suffix	Bore		Top Wall		2nd Wall		Oil Wall	
SNH	1	7500	75.00mm	2.9528"	2.70mm	.106"	3.20mm	.126"	3.18mm	.125"
		7550	75.50mm	2.9724"	2.70mm	.106"	3.20mm	.126"	3.18mm	.125"
		7600	76.00mm	2.9921"	2.70mm	.106"	3.20mm	.126"	3.18mm	.125"
		8100	81.00mm	3.1890"	3.10mm	.122"	3.40mm	.134"	3.18mm	.125"
		8125	81.25mm	3.1988"	3.10mm	.122"	3.40mm	.134"	3.18mm	.125"
		8150	81.50mm	3.2087"	3.10mm	.122"	3.40mm	.134"	3.18mm	.125"
		8200	82.00mm	3.2283"	3.10mm	.122"	3.40mm	.134"	3.18mm	.125"
		8250	82.50mm	3.2480"	3.10mm	.122"	3.40mm	.134"	3.18mm	.125"
		8255	82.55mm	3.2500"	3.10mm	.122"	3.40mm	.134"	3.18mm	.125"
		8300	83.00mm	3.2677"	3.10mm	.122"	3.40mm	.134"	3.18mm	.125"
		8350	83.50mm	3.2874"	3.10mm	.122"	3.40mm	.134"	3.18mm	.125"
		8400	84.00mm	3.3071"	3.10mm	.122"	3.40mm	.134"	3.18mm	.125"
		8425	84.25mm	3.3169"	3.10mm	.122"	3.50mm	.138"	3.18mm	.125"
		8450	84.50mm	3.3268"	3.10mm	.122"	3.50mm	.138"	3.18mm	.125"
		8500	85.00mm	3.3465"	3.10mm	.122"	3.50mm	.138"	3.18mm	.125"
		8550	85.50mm	3.3661"	3.10mm	.122"	3.50mm	.138"	3.18mm	.125"
		8600	86.00mm	3.3858"	3.10mm	.122"	3.50mm	.138"	3.18mm	.125"
		8625	86.25mm	3.3957"	3.30mm	.122"	3.60mm	.138"	3.18mm	.125"
		8650	86.50mm	3.4055"	3.30mm	.130"	3.60mm	.142"	3.18mm	.125"
		8700	87.00mm	3.4252"	3.30mm	.130"	3.60mm	.142"	3.18mm	.125"
		8750	87.50mm	3.4449"	3.30mm	.130"	3.60mm	.142"	3.18mm	.125"
		8800	88.00mm	3.4646"	3.30mm	.130"	3.60mm	.142"	3.18mm	.125"
		8850	88.50mm	3.4843"	3.30mm	.130"	3.60mm	.142"	3.18mm	.125"
		8900	89.00mm	3.5039"	3.30mm	.130"	3.60mm	.142"	3.18mm	.125"
8950	89.50mm	3.5236"	3.30mm	.130"	3.70mm	.146"	3.18mm	.125"		
9000	90.00mm	3.5433"	3.30mm	.130"	3.70mm	.146"	3.18mm	.125"		
9025	90.25mm	3.5531"	3.30mm	.130"	3.70mm	.146"	3.18mm	.125"		
9100	91.00mm	3.5827"	3.30mm	.130"	3.70mm	.146"	3.18mm	.125"		
9200	92.00mm	3.6220"	3.30mm	.130"	3.70mm	.146"	3.18mm	.125"		

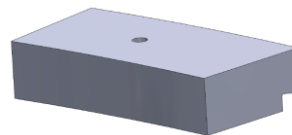
**Top Ring**

1.00mm (.0393") Width  
Steel Nitride



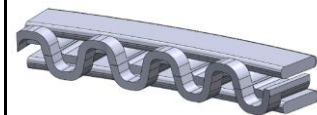
**2nd Ring**

1.20mm (.0472") Width  
Ductile Napier

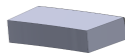
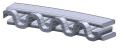
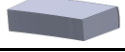
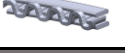






**Oil Ring**

2.80mm (.1102") Width  
Steel Nitride



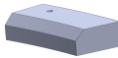
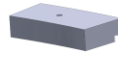
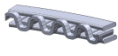
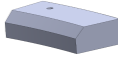
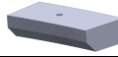
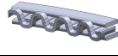
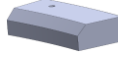
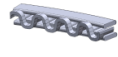
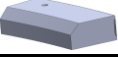
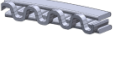
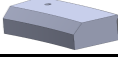
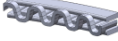
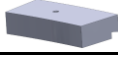
# SC SERIES

Set No	Cyl	Suffix	Bore	Note	Groove	Width	Wall	Shape	Material	Coating
SC5558	4	STD	2.953"	Drop In	Top	1.20mm	2.75mm		Steel	Chrome
		010	2.963"	Drop In		.0472"	.108"			
		020	2.973"	Drop In		2nd	1.50mm			
		030	2.983"	Drop In	.0590"		.120"			
		040	2.993"	Drop In	Oil	2.80mm	3.18mm		Steel	Chrome
060	3.013"	Drop In	(8 lbs)	.1102"	.125"					
SC5572	4	STD	3.189"	Drop In	Top	1.00mm	3.18mm		Steel	Chrome
		010	3.199"	Drop In		.0393"	.125"			
		020	3.209"	Drop In		2nd	1.20mm			
		030	3.219"	Drop In	.0472"		.130"			
		040	3.229"	Drop In	Oil	2.80mm	3.18mm		Steel	Chrome
			(12 lbs)	.1102"	.125"					
SC8513	4	STD	3.307"	Drop In	Top	1.00mm	3.18mm		Steel	Chrome
		020	3.327"	Drop In		.0393"	.125"			
						2nd	1.20mm			
			.0472"	.125"						
					Oil	2.80mm	3.18mm		Steel	Chrome
				(12 lbs)	.1102"	.125"				
SC5556	4	STD	3.445"	Drop In	Top	1.20mm	3.38mm		Steel	Chrome
		010	3.455"	Drop In		.0472"	.133"			
		020	3.465"	Drop In		2nd	1.20mm			
		030	3.475"	Drop In	.0472"		.138"			
		040	3.485"	Drop In	Oil	3.00mm	3.80mm		Steel	Chrome
060	3.505"	Drop In	(9 lbs)	.1181"	.150"					

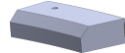
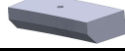
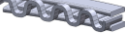
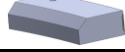


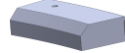
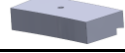
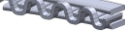
## 2M SERIES

Set No	Cyl	Suffix	Bore	Note	Groove	Width	Wall	Shape	Material	Coating		
2M5545	4	STD 005	3.188" 3.188"	Drop In File Fit	Top	1.58mm 1/16"	3.55mm .140"		Ductile Iron	Moly		
					2nd	2.00mm 5/64"	3.55mm .140"		Grey Iron	Phosphate		
					Oil (16 lbs)	4.00mm 5/32"	4.20mm .165"		Steel	Chrome		
2M5567	8	STD 035	3.736" 3.766"	Drop In File Fit	Top	1.58mm 1/16"	4.00mm .158"		Ductile Iron	Moly		
					2nd	1.58mm 1/16"	4.00mm .158"		Grey Iron	Phosphate		
					Oil (19 lbs)	4.75mm 3/16"	4.57mm .180"		Steel	Chrome		
2M5548	8	STD 045 065	3.736" 3.776" 3.796"	Drop In File Fit File Fit	Top	2.00mm 5/64"	4.32mm .170"		Ductile Iron	Moly		
					2nd	2.00mm 5/64"	4.00mm .158"		Grey Iron	Phosphate		
					Oil (15 lbs)	4.75mm 3/16"	3.80mm .150"		Steel	Chrome		
2M5527	4	STD 020 030 035 040 045	3.780" 3.800" 3.810" 3.810" 3.820" 3.820"	Drop In Drop In Drop In Drop In Drop In File Fit	Top	1.58mm 1/16"	4.40mm .173"		Ductile Iron	Moly		
					2nd	1.58mm 1/16"	4.40mm .173"		Grey Iron	Phosphate		
					Oil (19 lbs)	4.75mm 3/16"	5.08mm .200"		Steel	Chrome		
2M5522	8	STD 005 065	3.875" 3.875" 3.935"	Drop In File Fit File Fit	Top	1.58mm 1/16"	4.55mm .179"		Ductile Iron	Moly		
					2nd	1.58mm 1/16"	4.55mm .179"		Grey Iron	Phosphate		
					Oil (15 lbs)	4.75mm 1/8"	5.08mm .200"		Steel	Chrome		
2M5575	8	STD 030 040 060	3.910" 3.940" 3.950" 3.970"	Drop In Drop In Drop In Drop In	Top	1.58mm 1/16"	4.58mm .180"		Ductile Iron	Moly		
					2nd	1.58mm 1/16"	4.58mm .180"		Grey Iron	Phosphate		
					Oil (21 lbs)	4.75mm 3/16"	4.70mm .185"		Steel	Chrome		
2M5540	8	STD 005 025 030 035 040 045 060 065 085 095 105	4.00" 4.000" 4.020" 4.030" 4.035" 4.040" 4.045" 4.060" 4.060" 4.080" 4.090" 4.100"	Drop In File Fit File Fit Drop In Drop In Drop In Drop In Drop In File Fit File Fit File Fit File Fit	Top	1.50mm .0590"	3.95mm .155"		Ductile Iron	Moly		
					2nd	1.50mm .0590"	4.20mm .165"		Grey Iron	Phosphate		
					Oil (11 lbs)	3.00mm .1181"	3.80mm .150"		Steel	Chrome		

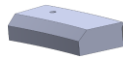
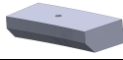
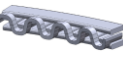
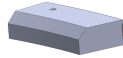
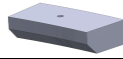
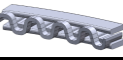
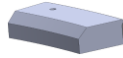
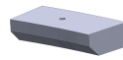
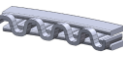
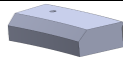
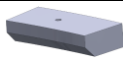
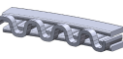
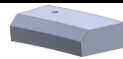
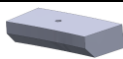
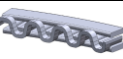
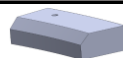
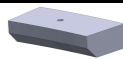
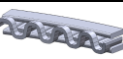
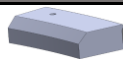
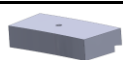
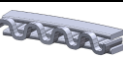
# 2M SERIES

Set No	Cyl	Suffix	Bore	Note	Groove	Width	Wall	Shape	Material	Coating
2M8521	8	STD	4.000"	Drop In	Top	1.50mm .0590"	3.95mm .155"		Ductile Iron	Moly
		005	4.000"	File Fit						
		035	4.035"	Drop In						
		045	4.045"	Drop In	2nd	1.50mm .0590"	4.15mm .163"		Ductile Iron	Phosphate
		065	4.060"	File Fit	Oil (11 lbs)	3.00mm .1181"	3.80mm .150"		Steel	Chrome
2M5535	8	STD	4.000"	Drop In	Top	1.50mm .0590"	3.95mm .155"		Ductile Iron	Moly
		005	4.000"	File Fit						
		030	4.030"	Drop In						
					2nd	1.50mm .0590"	4.20mm .165"		Grey Iron	Phosphate
					Oil (21 lbs)	4.00mm 5/32"	3.30mm .130"		Steel	Chrome
2M5538	8	STD	4.000"	Drop In	Top	1.58mm 1/16"	4.65mm .183"		Ductile Iron	Moly
		005	4.055"	Drop In						
		010	4.010"	Drop In						
		020	4.020"	Drop In						
		025	4.020"	File Fit						
		030	4.030"	Drop In						
		035	4.035"	Drop In						
		040	4.040"	Drop In						
		045	4.045"	Drop In						
		060	4.060"	Drop In						
		065	4.065"	File Fit	Oil (11 lbs)	3.00mm .1181"	3.80mm .150"		Steel	Chrome
		075	4.070"	File Fit						
		085	4.080"	File Fit						
2M5521	8	STD	4.000"	Drop In	Top	1.58mm 1/16"	4.65mm .183"		Ductile Iron	Moly
		005	4.000"	File Fit						
		010	4.010"	Drop In						
		020	4.020"	Drop In						
		025	4.020"	File Fit						
		030	4.030"	Drop In						
		035	4.030"	File Fit						
		040	4.040"	Drop In						
		045	4.040"	File Fit						
		060	4.060"	Drop In						
		065	4.060"	File Fit	Oil (16 lbs)	3.18mm 1/8"	4.57mm .180"		Steel	Chrome
2M8571	8	STD	4.000"	Drop In	Top	1.58mm 1/16"	4.65mm .183"		Ductile Iron	Moly
		005	4.000"	File Fit						
		030	4.030"	Drop In						
		035	4.030"	File Fit						
		045	4.040"	File Fit						
		065	4.060"	File Fit	Oil (16 lbs)	3.18mm 1/8"	4.57mm .180"		Steel	Chrome
					2nd	1.58mm 1/16"	4.25mm .167"		Ductile Iron	Phosphate

# 2M SERIES

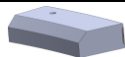
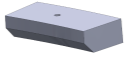
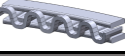
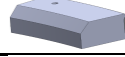

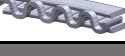

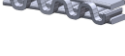
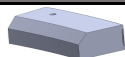
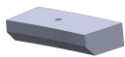
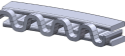



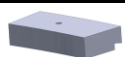
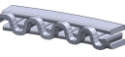

Set No	Cyl	Suffix	Bore	Note	Groove	Width	Wall	Shape	Material	Coating		
2M5505	8	STD	4.000"	Drop In	Top	1.58mm 1/16"	4.65mm .183"		Ductile Iron	Moly		
		005	4.000"	File Fit								
		010	4.010"	Drop In								
				030	4.030"	Drop In	2nd	1.58mm 1/16"	4.65mm .183"		Grey Iron	Phosphate
				035	4.030"	File Fit						
				040	4.040"	Drop In						
				045	4.040"	File Fit	Oil (15 lbs)	4.75mm 3/16"	3.80mm .150"		Steel	Chrome
		060	4.060"	Drop In								
		065	4.060"	File Fit								
2M5523	8	STD	4.000"	Drop In	Top	1.58mm 1/16"	4.65mm .183"		Ductile Iron	Moly		
		005	4.000"	File Fit								
		010	4.010"	Drop In								
				020	4.020"	Drop In	2nd	1.58mm 1/16"	4.65mm .183"		Grey Iron	Phosphate
				025	4.020"	File Fit						
				030	4.030"	Drop In						
				035	4.030"	File Fit	Oil (22 lbs)	4.75mm 3/16"	5.08mm .200"		Steel	Chrome
				040	4.040"	Drop In						
				045	4.040"	File Fit						
				060	4.060"	Drop In						
				065	4.060"	File Fit						
		080	4.080"	Drop In								
2M8542	8	STD	4.000"	Drop In	Top	1.58mm 1/16"	4.65mm .183"		Ductile Iron	Moly		
		005	4.000"	File Fit								
		030	4.030"	Drop In								
				035	4.030"	File Fit	2nd	1.58mm 1/16"	4.25mm .167"		Ductile Iron	Phosphate
				040	4.040"	Drop In						
				045	4.040"	File Fit						
				060	4.060"	Drop In	Oil (22 lbs)	4.75mm 3/16"	5.08mm .200"		Steel	Chrome
		065	4.060"	File Fit								

# 2M SERIES

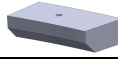
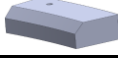
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2M5508	8	STD	4.000"	Drop In	Top	2.00mm 5/64"	4.65mm .183"		Ductile Iron	Moly			
		005	4.000"	File Fit									
		020	4.020"	Drop In									
		025	4.020"	File Fit	2nd	2.00mm 5/64"	4.65mm .183"		Grey Iron	Phosphate			
		030	4.030"	Drop In									
		035	4.030"	File Fit									
		040	4.040"	Drop In	Oil (22 lbs)	4.75mm 3/16"	5.08mm .200"		Steel	Chrome			
045	4.040"	File Fit											
060	4.060"	Drop In											
065	4.060"	File Fit											
2M5525	8	STD	4.050"	Drop In	Top	1.58mm 1/16"	4.77mm .188"		Ductile Iron	Moly			
		005	4.050"	File Fit									
		030	4.080"	Drop In									
		035	4.080"	File Fit	2nd	1.58mm 1/16"	4.77mm .188"		Grey Iron	Phosphate			
		060	4.110"	Drop In									
		065	4.110"	File Fit									
		Oil (22 lbs)	4.75mm 3/16"	5.08mm .200"		Steel	Chrome						
2M5511	8	STD	4.063"	Drop In	Top	2.00mm 5/64"	4.72mm .186"		Ductile Iron	Moly			
		005	4.063"	File Fit									
		035	4.093"	File Fit									
		2nd	2.00mm 5/64"	4.72mm .186"		Grey Iron	Phosphate						
		Oil (22 lbs)	4.75mm 3/16"	5.08mm .200"					Steel	Chrome			
2M5512	8	STD	4.093"	Drop In	Top	2.00mm 5/64"	4.72mm .186"		Ductile Iron	Moly			
		005	4.093"	File Fit									
		030	4.123"	File Fit									
		060	4.153"	File Fit	2nd	2.00mm 5/64"	4.72mm .186"		Grey Iron	Phosphate			
		Oil (22 lbs)	4.75mm 3/16"	5.08mm .200"								Steel	Chrome
2M5590	8	STD	4.120"	Drop In	Top	1.58mm 1/16"	4.83mm .190"		Ductile Iron	Moly			
		035	4.150"	File Fit									
		045	4.160"	File Fit									
		065	4.180"	File Fit	2nd	1.58mm 1/16"	4.83mm .190"		Grey Iron	Phosphate			
		Oil (22 lbs)	4.75mm 3/16"	5.08mm .200"								Steel	Chrome
2M5581	8	STD	4.125"	Drop In	Top	1.50mm .0590"	3.95mm .155"		Ductile Iron	Moly			
		005	4.125"	File Fit									
		020	4.145"	Drop In									
		030	4.155"	Drop In	2nd	1.50mm .0590"	4.20mm .165"		Grey Iron	Phosphate			
		035	4.155"	File Fit									
		040	4.165"	Drop In									
		045	4.165"	File Fit	Oil (11 lbs)	3.00mm .1181"	3.80mm .150"		Steel	Chrome			
065	4.185"	File Fit											
2M8505	8	STD	4.125"	Drop In	Top	1.50mm .0590"	3.95mm .155"		Ductile Iron	Moly			
		005	4.125"	File Fit									
		035	4.155"	File Fit									
		045	4.165"	File Fit	2nd	1.50mm .0590"	4.15mm .163"		Ductile Iron	Phosphate			
		065	4.185"	File Fit									
		Oil (11 lbs)	3.00mm .1181"	3.80mm .150"								Steel	Chrome



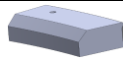
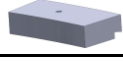
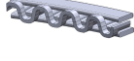
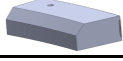
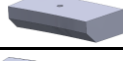
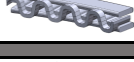
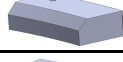


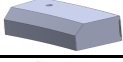

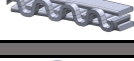
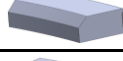

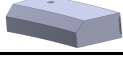


# 2M SERIES

Set No	Cyl	Suffix	Bore	Note	Groove	Width	Wall	Shape	Material	Coating			
2M5539	8	STD	4.125"	Drop In	Top	1.58mm 1/16"	4.83mm .190"		Ductile Iron	Moly			
		005	4.125"	File Fit									
		010	4.135"	Drop In									
		030	4.155"	Drop In									
Oil (11 lbs)	8	035	4.155"	File Fit	2nd	1.58mm 1/16"	4.83mm .190"		Grey Iron	Phosphate			
		040	4.165"	Drop In									
		Oil (11 lbs)	3.00mm .1181"	3.80mm .150"								Steel	Chrome
2M5501	8	STD	4.125"	Drop In	Top	1.58mm 1/16"	4.83mm .190"		Ductile Iron	Moly			
		005	4.125"	File Fit									
		030	4.155"	Drop In									
		035	4.155"	File Fit									
Oil (11 lbs)	8	040	4.155"	File Fit	2nd	1.58mm 1/16"	4.83mm .190"		Grey Iron	Phosphate			
		Oil (11 lbs)	3.18mm 1/8"	4.32mm .170"								Steel	Chrome
		2M5510	8	STD									
005	4.125"			File Fit									
030	4.155"			Drop In									
035	4.155"			File Fit									
Oil (15 lbs)	8	040	4.165"	Drop In	2nd	1.58mm 1/16"	4.83mm .190"		Grey Iron	Phosphate			
		045	4.165"	File Fit									
		060	4.185"	Drop In									
Oil (15 lbs)	4.75mm 3/16"	3.80mm .150"		Steel	Chrome								
2M5529	8	STD				4.125"	Drop In	Top	1.58mm 1/16"	4.83mm .190"		Ductile Iron	Moly
		005				4.125"	File Fit						
		010	4.135"	Drop In									
		020	4.145"	Drop In									
		025	4.145"	File Fit									
		030	4.155"	Drop In									
		035	4.155"	File Fit									
		040	4.165"	Drop In									
		045	4.165"	File Fit									
		060	4.185"	Drop In									
		065	4.185"	File Fit									
Oil (22 lbs)	8	025	4.145"	File Fit	2nd	1.58mm 1/16"	4.83mm .190"		Grey Iron	Phosphate			
		040	4.165"	Drop In									
		Oil (22 lbs)	4.75mm 3/16"	5.08mm .200"								Steel	Chrome
2M8552	8	STD	4.125"	Drop In	Top	1.58mm 1/16"	4.83mm .190"		Ductile Iron	Moly			
		005	4.125"	File Fit									
		010	4.135"	Drop In									
		020	4.145"	Drop In									
		025	4.145"	File Fit									
		030	4.155"	Drop In									
		035	4.155"	File Fit									
		040	4.165"	Drop In									
		045	4.165"	File Fit									
		060	4.185"	Drop In									
		065	4.185"	File Fit									
Oil (22 lbs)	8	025	4.145"	File Fit	2nd	1.58mm 1/16"	4.35mm .170"		Ductile Iron	Phosphate			
		040	4.165"	Drop In									
		Oil (22 lbs)	4.75mm 3/16"	5.08mm .200"								Steel	Chrome
2M8559	8	STD	4.125"	Drop In	Top	1.58mm 1/16"	4.83mm .190"		Ductile Iron	Moly			
		005	4.125"	File Fit									
		030	4.155"	Drop In									
		035	4.155"	File Fit									
		040	4.165"	Drop In									
		045	4.165"	File Fit									
		060	4.185"	Drop In									
065	4.185"	File Fit											
Oil (15 lbs)	8	035	4.155"	File Fit	2nd	1.58mm 1/16"	4.35mm .170"		Ductile Iron	Phosphate			
		045	4.165"	File Fit									
		Oil (15 lbs)	4.75mm 3/16"	3.80mm .150"								Steel	Chrome

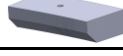








# 2M SERIES

Set No	Cyl	Suffix	Bore	Note	Groove	Width	Wall	Shape	Material	Coating					
2M5513	8	STD	4.125"	Drop In	Top	2.00mm 5/64"	4.83mm .190"		Ductile Iron	Moly					
		005	4.125"	File Fit											
		025	4.145"	File Fit											
		030	4.155"	Drop In	2nd	2.00mm 5/64"	4.83mm .190"		Grey Iron	Phosphate					
		035	4.155"	File Fit											
		040	4.165"	Drop In											
		045	4.165"	File Fit	Oil (22 lbs)	3/16"	4.75mm 5.08mm .200"		Steel	Chrome					
060	4.185"	Drop In													
065	4.185"	File Fit													
2M5543	8	STD	4.150"	Drop In	Top	1.58mm 1/16"	4.83mm .190"		Ductile Iron	Moly					
		005	4.150"	File Fit											
		030	4.180"	Drop In											
		035	4.180"	File Fit	2nd	1.58mm 1/16"	4.83mm .190"		Grey Iron	Phosphate					
		065	4.210"	File Fit											
		Oil (22 lbs)	4.75mm 5.08mm .200"	3/16"								Steel	Chrome		
		2M5542	8	STD	4.165"	Drop In	Top	1.58mm 1/16"	4.83mm .190"					Ductile Iron	Moly
005	4.165"			File Fit											
030	4.195"			Drop In											
045	4.205"			File Fit	2nd	1.58mm 1/16"	4.83mm .190"		Grey Iron	Phosphate					
065	4.225"			File Fit											
Oil (22 lbs)	4.75mm 5.08mm .200"			3/16"								Steel	Chrome		
2M5526	8			STD	4.233"	Drop In	Top	1.58mm 1/16"	4.83mm .190"					Ductile Iron	Moly
		030	4.263"	Drop In											
		035	4.263"	File Fit											
		Oil (22 lbs)	4.75mm 5.08mm .200"	3/16"		Steel	Chrome								
		2M8569	8	STD				4.250"	Drop In	Top	1.50mm .0590"	3.95mm .155"		Ductile Iron	Moly
				030				4.280"	Drop In						
				Oil (11 lbs)	3.00mm .1181"	3.80mm .150"		Steel	Chrome						
005	4.250"			File Fit											
035	4.280"			File Fit											
060	4.310"			Drop In	2nd	1.50mm .0590"	4.20mm .165"		Grey Iron	Phosphate					
065	4.310"			File Fit											
2M8510	8	STD	4.250"	Drop In							Top	1.50mm .0590"	3.95mm .155"		Ductile Iron
		005	4.250"	File Fit											
		035	4.280"	File Fit											
		060	4.310"	Drop In	2nd	1.50mm .0590"	4.20mm .165"		Ductile Iron	Phosphate					
		065	4.310"	File Fit											
		Oil (15 lbs)	3.00mm .1181"	3.80mm .150"								Steel	Chrome		
		2M5515	8	STD	4.250"	Drop In	Top	1.58mm 1/16"	4.97mm .196"					Ductile Iron	Moly
030	4.280"			Drop In											
035	4.280"			File Fit											
060	4.310"			Drop In	2nd	1.58mm 1/16"	4.97mm .196"		Grey Iron	Phosphate					
065	4.310"			File Fit											
125	4.375"			Drop In											
Oil (15 lbs)	4.75mm 3/16"			3.80mm .150"		Steel	Chrome								
2M5519	8	STD	4.250"	Drop In				Top	1.58mm 1/16"	4.97mm .196"		Ductile Iron	Moly		
		005	4.250"	File Fit											
		010	4.260"	Drop In											
		020	4.270"	Drop In	2nd	1.58mm 1/16"	4.97mm .196"		Grey Iron	Phosphate					
		030	4.280"	Drop In											
		035	4.280"	File Fit											
		040	4.290"	Drop In	Oil (22 lbs)	3/16"	4.75mm 5.08mm .200"		Steel	Chrome					
		060	4.310"	Drop In											
		065	4.310"	File Fit											
		125	4.375"	Drop In											

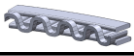
# 2M SERIES

Set No	Cyl	Suffix	Bore	Note	Groove	Width	Wall	Shape	Material	Coating		
2M8562	8	STD	4.250"	Drop In	Top	1.58mm 1/16"	4.97mm .196"		Ductile Iron	Moly		
		005	4.250"	File Fit								
		030	4.280"	Drop In								
				035	4.280"	File Fit	2nd	1.58mm 1/16"	4.45mm .175"		Ductile Iron	Phosphate
				040	4.290"	Drop In						
				060	4.310"	Drop In						
				065	4.310"	File Fit	Oil (22 lbs)	4.75mm 3/16"	5.08mm .200"		Steel	Chrome
		125	4.375"	Drop In								
2M5514	8	STD	4.250"	Drop In	Top	2.00mm 5/64"	4.97mm .196"		Ductile Iron	Moly		
		030	4.280"	Drop In								
		060	4.310"	Drop In								
					2nd	2.00mm 5/64"	4.97mm .196"		Grey Iron	Phosphate		
					Oil (15 lbs)	4.75mm 3/16"	3.80mm .150"		Steel	Chrome		
2M5518	8	STD	4.250"	Drop In	Top	2.00mm 5/64"	4.97mm .196"		Ductile Iron	Moly		
		005	4.250"	File Fit								
		030	4.280"	Drop In								
				035	4.280"	File Fit	2nd	2.00mm 5/64"	4.97mm .196"		Grey Iron	Phosphate
				040	4.290"	Drop In						
		060	4.310"	Drop In								
		065	4.310"	File Fit	Oil (22 lbs)	4.75mm 3/16"	5.08mm .200"		Steel	Chrome		
2M5520	8	STD	4.320"	Drop In	Top	1.58mm 1/16"	5.00mm .197"		Ductile Iron	Moly		
		030	4.350"	Drop In								
		035	4.350"	File Fit								
					2nd	1.58mm 1/16"	5.00mm .197"		Grey Iron	Phosphate		
					Oil (15 lbs)	4.75mm 3/16"	3.80mm .150"		Steel	Chrome		
2M5528	8	STD	4.320"	Drop In	Top	1.58mm 1/16"	5.00mm .197"		Ductile Iron	Moly		
		005	4.320"	File Fit								
		030	4.350"	Drop In								
				035	4.350"	File Fit	2nd	1.58mm 1/16"	5.00mm .197"		Grey Iron	Phosphate
				040	4.360"	Drop In						
				045	4.360"	File Fit						
				055	4.375"	Drop In	Oil (22 lbs)	4.75mm 3/16"	5.08mm .200"		Steel	Chrome
		060	4.380"	Drop In								
		065	4.380"	File Fit								
2M5536	8	STD	4.360"	Drop In	Top	1.58mm 1/16"	5.08mm .200"		Ductile Iron	Moly		
		020	4.380"	Drop In								
		030	4.390"	Drop In								
				035	4.390"	File Fit	2nd	1.58mm 1/16"	5.08mm .200"		Grey Iron	Phosphate
				040	4.400"	Drop In						
				065	4.420"	File Fit						
				080	4.440"	Drop In	Oil (22 lbs)	4.75mm 3/16"	5.08mm .200"		Steel	Chrome
		085	4.440"	File Fit								

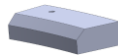
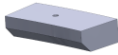
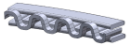
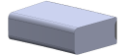
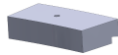
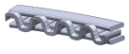
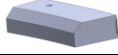
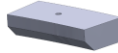
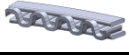
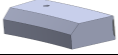
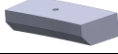
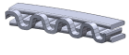
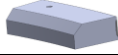
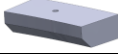
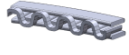
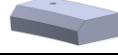
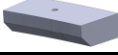
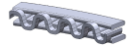
# 2M SERIES

Set No	Cyl	Suffix	Bore	Note	Groove	Width	Wall	Shape	Material	Coating
2M5537	8	STD 004	4.467" 4.467"	Drop In File Fit	Top	1.58mm 1/16"	5.13mm .202"		Ductile Iron	Moly
					2nd	1.58mm 1/16"	5.13mm .202"		Grey Iron	Phosphate
					Oil (22 lbs)	4.75mm 3/16"	5.08mm .200"		Steel	Chrome
2M8525	8	STD	4.500"	Drop In	Top	1.50mm .0590"	3.95mm .155"		Ductile Iron	Moly
					2nd	1.50mm .0590"	4.20mm .165"		Grey Iron	Phosphate
					Oil (11 lbs)	3.00mm .1181"	3.80mm .150"		Steel	Chrome
2M8535	8	STD 005 035	4.500" 4.500" 4.530"	Drop In File Fit File Fit	Top	1.50mm .0590"	3.95mm .155"		Ductile Iron	Moly
					2nd	1.50mm .0590"	4.15mm .163"		Ductile Iron	Phosphate
					Oil (11 lbs)	3.00mm .1181"	3.80mm .150"		Steel	Chrome
2M5589	8	STD 005 030 035 060 065 100 105 130	4.500" 4.500" 4.530" 4.530" 4.560" 4.560" 4.600" 4.600" 4.630"	Drop In File Fit Drop In File Fit Drop In File Fit Drop In File Fit Drop In	Top	1.58mm 1/16"	5.33mm .210"		Ductile Iron	Moly
					2nd	1.58mm 1/16"	5.20mm .205"		Grey Iron	Phosphate
					Oil (22 lbs)	4.75mm 3/16"	5.08mm .200"		Steel	Chrome
					Oil (22 lbs)	4.75mm 3/16"	5.08mm .200"		Steel	Chrome
					Oil (22 lbs)	4.75mm 3/16"	5.08mm .200"		Steel	Chrome
					Oil (22 lbs)	4.75mm 3/16"	5.08mm .200"		Steel	Chrome
2M5596	8	STD 005 030 035 060 065 100 105	4.500" 4.500" 4.530" 4.530" 4.560" 4.560" 4.600" 4.600"	Drop In File Fit Drop In File Fit Drop In File Fit Drop In File Fit	Top	1.58mm 1/16"	5.33mm .210"		Ductile Iron	Moly
					2nd	1.58mm 1/16"	5.20mm .205"		Grey Iron	Phosphate
					Oil (15 lbs)	4.75mm 3/16"	3.80mm .150"		Steel	Chrome
2M8588	8	STD 005 035 065	4.500" 4.500" 4.530" 4.560"	Drop In File Fit File Fit File Fit	Top	1.58mm 1/16"	5.20mm .205"		Ductile Iron	Moly
					2nd	1.58mm 1/16"	4.83mm .190"		Ductile Iron	Phosphate
					Oil (22 lbs)	4.75mm 3/16"	5.08mm .200"		Steel	Chrome
2M8594	8	STD 005 035 065	4.500" 4.500" 4.530" 4.560"	Drop In File Fit File Fit File Fit	Top	1.58mm 1/16"	5.20mm .205"		Ductile Iron	Moly
					2nd	1.58mm 1/16"	4.83mm .190"		Ductile Iron	Phosphate
					Oil (15 lbs)	4.75mm 3/16"	3.80mm .150"		Steel	Chrome

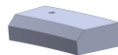
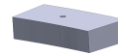
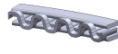
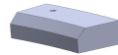
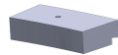
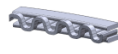
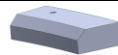
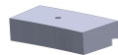
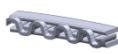
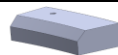
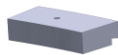
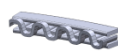
# SM SERIES

Set No	Cyl	Suffix	Bore	Note	Groove	Width	Wall	Shape	Material	Coating						
SM5565	8	STD	3.780"	Drop In	Top	1.20mm .0472"	3.45mm .136"		Steel	Moly						
		010	3.790"	Drop In												
		020	3.800"	Drop In												
		030	3.810"	Drop In												
		040	3.820"	Drop In	2nd	1.20mm .0472"	3.65mm .143"		Grey Iron	Phosphate						
					Oil (10 lbs)	3.00mm .1181"	3.80mm .150"		Steel	Chrome						
SM8531	8	STD	3.780"	Drop In	Top	1.50mm .0590"	3.70mm .146"		Steel	Moly						
		005	3.780"	File Fit												
		015	3.790"	File Fit												
		025	3.800"	File Fit												
		035	3.810"	File Fit												
		045	3.820"	File Fit												
065	3.840"	File Fit														
					2nd	1.50mm .0590"	4.00mm .158"		Ductile Iron	Phosphate						
					Oil (10 lbs)	3.00mm .1181"	3.80mm .150"		Steel	Chrome						
SM8555	8	STD	3.898"	Drop In	Top	1.50mm .0590"	3.70mm .146"		Steel	Moly						
		007	3.905"	Drop In												
											2nd	1.50mm .0590"	4.15mm .163"		Ductile Iron	Phosphate
											Oil (12 lbs)	3.00mm .1181"	3.80 .150"		Steel	Chrome
SM8560	8	STD	3.917"	Drop In	Top	1.50mm .0590"	3.70mm .146"		Steel	Moly						
		010	3.927"	Drop In												
		020	3.937"	Drop In												
											2nd	1.50mm .0590"	4.15mm .163"		Ductile Iron	Phosphate
					Oil (12 lbs)	3.0mm .1181"	3.80mm 0.150		Steel	Chrome						
SM5587	8	STD	4.000"	Drop In	Top	1.09mm .0430"	3.95mm .155"		Steel	Moly						
		030	4.030"	Drop In												
		035	4.030"	File Fit												
		040	4.040"	Drop In												
		045	4.040"	File fit												
		060	4.060"	Drop In												
065	4.060"	File Fit														
					2nd	1.09mm .0430"	4.20mm .165"		Grey Iron	Phosphate						
					Oil (10 lbs)	3.00mm .1181"	3.80mm .150"		Steel	Chrome						
SM8556	8	STD	4.000"	Drop In	Top	1.09mm .0430"	3.95mm .155"		Steel	Moly						
		005	4.000"	File Fit												
		025	4.020"	File Fit												
		035	4.030"	File Fit												
		045	4.040"	File Fit												
		055	4.050"	File Fit												
		060	4.060"	Drop In												
		065	4.065"	File Fit												
		070	4.070"	Drop In												
					2nd	1.09mm .0430"	4.15mm .163"		Ductile Iron	Phosphate						
					Oil (10 lbs)	3.00mm .1181"	3.80mm .150"		Steel	Chrome						
SM8527	8	STD	4.000"	Drop In	Top	1.09mm .0430"	3.95mm .155"		Steel	Moly						
		005	4.000"	File Fit												
		025	4.020"	File Fit												
		035	4.030"	File Fit												
		045	4.040"	File Fit												
		065	4.060"	File Fit												
080	4.080"	Drop In														
					2nd	1.58mm 1/16"	4.63mm .182"		Grey Iron	Phosphate						
					Oil (22 lbs)	4.75mm 3/16"	4.83mm .190"		Steel	Chrome						


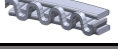
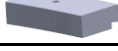




# SM SERIES

Set No	Cyl	Suffix	Bore	Note	Groove	Width	Wall	Shape	Material	Coating
SM8537	8	STD	4.000"	Drop In	Top	1.09mm .0430"	3.95mm .155"		Steel	Moly
		005	4.000"	File Fit						
		035	4.030"	File Fit						
		045	4.040"	File Fit	2nd	1.58mm 1/16"	4.63mm .182"		Grey Iron	Phosphate
065	4.060"	File Fit								
080	4.080"	Drop In								
					Oil (15 lbs)	4.75mm 3/16"	3.80mm .150"		Steel	Chrome
SM8565	8	STD	4.000"	Drop In	Top	1.50mm .0590"	3.70mm .146"		Steel	Moly
		005	4.005"	Drop In						
		025	4.025"	Drop In						
		030	4.030"	Drop In	2nd	1.50mm .0590"	4.15mm .163"		Ductile Iron	Phosphate
		035	4.035"	Drop In						
		040	4.040"	Drop In						
		045	4.045"	Drop In	Oil (13 lbs)	3.00mm .1181"	3.80mm .150"		Steel	Chrome
		055	4.055"	Drop In						
		060	4.060"	Drop In						
		065	4.065"	Drop In						
		070	4.070"	Drop In						
		080	4.080"	Drop In						
100	4.100"	Drop In								
120	4.120"	Drop In								
SM5593	8	STD	4.125"	Drop In	Top	1.09mm .0430"	3.95mm .155"		Steel	Moly
		005	4.125"	File Fit						
		020	4.145"	Drop In						
		060	4.185"	Drop In	2nd	1.09mm .0430"	4.20mm .165"		Grey Iron	Phosphate
					Oil (10 lbs)	3.00mm .1181"	3.80mm .150"		Steel	Chrome
SM8550	8	STD	4.125"	Drop In	Top	1.09mm .0430"	3.95mm .155"		Steel	Moly
		005	4.125"	File Fit						
		010	4.135"	Drop In						
		015	4.135"	File Fit	2nd	1.09mm .0430"	4.20mm .165"		Grey Iron	Phosphate
		025	4.145"	File Fit						
		035	4.155"	File Fit						
045	4.165"	File Fit	Oil (10 lbs)	3.00mm .1181"	3.80mm .150"		Steel	Chrome		
SM8547	8	STD	4.125"	Drop In	Top	1.09mm .0430"	3.95mm .155"		Steel	Moly
		005	4.125"	File Fit						
		020	4.145"	Drop In						
		025	4.145"	File Fit	2nd	1.58mm 1/16"	4.63mm .182"		Grey Iron	Phosphate
		030	4.155"	Drop In						
		035	4.155"	File Fit						
		040	4.165"	Drop In	Oil (22 lbs)	4.75mm 3/16"	4.83mm .190"		Steel	Chrome
		045	4.165"	File Fit						
060	4.185"	Drop In								
SM8557	8	STD	4.125"	Drop In	Top	1.09mm .0430"	3.95mm .155"		Steel	Moly
		005	4.125"	File Fit						
		030	4.155"	Drop In						
		035	4.155"	File Fit	2nd	1.58mm 1/16"	4.63mm .182"		Grey Iron	Phosphate
		040	4.165"	Drop In						
		045	4.165"	File Fit						
060	4.185"	Drop In	Oil (15 lbs)	4.75mm 3/16"	3.80mm .150"		Steel	Chrome		

# SM SERIES

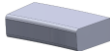
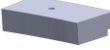
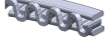
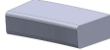
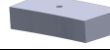
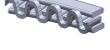
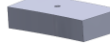
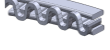
Set No	Cyl	Suffix	Bore	Note	Groove	Width	Wall	Shape	Material	Coating
SM5597	8	STD 035	4.250" 4.280"	Drop In File Fit	Top	1.09mm .0430"	3.95mm .155"		Steel	Moly
					2nd	1.09mm .0430"	4.15mm .163"		Ductile Iron	Phosphate
					Oil (11 lbs)	3.00mm .1181"	3.80mm .150"		Steel	Chrome
SM8567	8	STD 035 065	4.250" 4.280" 4.310"	Drop In File Fit File Fit	Top	1.09mm .0430"	3.95mm .155"		Steel	Moly
					2nd	1.58mm 1/16"	4.63mm .182"		Grey Iron	Phosphate
					Oil (22 lbs)	4.75mm 3/16"	4.83mm .190"		Steel	Chrome
SM8582	8	STD 005 035 105 130	4.500" 4.500" 4.530" 4.600" 4.625"	Drop In File Fit File Fit File Fit File Fit	Top	1.09mm .0430"	3.95mm .155"		Steel	Moly
					2nd	1.09mm .0430"	4.15mm .163"		Ductile Iron	Phosphate
					Oil (13 lbs)	3.00mm .1181"	3.80mm .150"		Steel	Chrome
SM8592	8	STD 005 035	4.500" 4.500" 4.530"	Drop In File Fit File Fit	Top	1.09mm .0430"	3.95mm .155"		Steel	Moly
					2nd	1.58mm 1/16"	4.75 .187"		Ductile Iron	Phosphate
					Oil (13 lbs)	3.00mm .1181"	3.80mm .150"		Steel	Chrome

# SN SERIES

Set No	Cyl	Suffix	Bore	Note	Groove	Width	Wall	Shape	Material	Coating
SN5582	8	005	3.551"	File Fit	Top	1.50mm .0590"	3.10mm .122"		Steel	Nitride
		025	3.571"	File Fit	2nd	1.50mm .0590"	3.88mm .153"		Grey Iron	Phosphate
		035	3.581"	File Fit						
045	3.591"	File Fit	Oil (10 lbs)	3.00mm .1181"	3.80mm .150"		Steel	Chrome		
SN9030	8	STD	3.780"	Drop In	Top	1.20mm .0472"	3.70mm .145"		Steel	Nitride
		005	3.785"	Drop In	2nd	1.20mm .0472"	3.75mm .147"		Ductile Iron	Phosphate
		010	3.790"	Drop In						
		020	3.800"	Drop In	Oil (10 lbs)	3.00mm .1181"	3.80mm .150"		Steel	Chrome
030	3.810"	Drop In								
040	3.820"	Drop In								
SN8531	8	STD	3.780"	Drop In	Top	1.50mm .0590"	3.50mm .138"		Steel	Nitride
		020	3.800"	Drop In	2nd	1.50mm .0590"	3.50mm .138"		Ductile Iron	Phosphate
		030	3.810"	Drop In						
				Oil (10 lbs)	3.00mm .1181"	3.80mm .150"		Steel	Chrome	
SN9035	8	STD	3.898"	Drop In	Top	1.20mm .0472"	3.70mm .145"		Steel	Nitride
		007	3.905"	Drop In	2nd	1.20mm .0472"	3.75mm .147"		Ductile Iron	Phosphate
				Oil (12 lbs)	3.00mm .1181"	3.80mm .150"		Steel	Chrome	
SN9055	8	STD	3.898"	Drop In	Top	1.20mm .0472"	3.70mm .145"		Steel	Nitride
		007	3.905"	Drop In	2nd	1.50mm .0590"	4.15mm .163"		Ductile Iron	Phosphate
				Oil (12 lbs)	3.00mm .1181"	3.80mm .150"		Steel	Chrome	
SN9040	8	STD	3.917"	Drop In	Top	1.20mm .0472"	3.70mm .145"		Steel	Nitride
		010	3.927"	Drop In	2nd	1.20mm .0472"	3.75mm .147"		Ductile Iron	Phosphate
		020	3.937"	Drop In						
				Oil (12 lbs)	3.00mm .1181"	3.80mm .150"		Steel	Chrome	
SN9060	8	STD	3.917"	Drop In	Top	1.20mm .0472"	3.70mm .145"		Steel	Nitride
		010	3.927"	Drop In	2nd	1.50mm .0590"	4.15mm .163"		Ductile Iron	Phosphate
		020	3.937"	Drop In						
				Oil (12 lbs)	3.00mm .1181"	3.80mm .150"		Steel	Chrome	



# SN SERIES

Set No	Cyl	Suffix	Bore	Note	Groove	Width	Wall	Shape	Material	Coating		
SN9045	8	STD	4.000"	Drop In	Top	1.20mm .0472"	3.70mm .145"		Steel	Nitride		
		005	4.005"	Drop In								
		010	4.010"	Drop In								
		015	4.015"	Drop In	2nd	1.20mm .0472"	3.75mm .147"		Ductile Iron	Phosphate		
		020	4.020"	Drop In								
		025	4.025"	Drop In	Oil (13 lbs)	3.00mm .1181"	3.80mm .150"		Steel	Chrome		
		030	4.030"	Drop In								
		035	4.035"	Drop In								
		040	4.040"	Drop In								
		045	4.045"	Drop In								
		050	4.050"	Drop In								
		055	4.055"	Drop In								
		060	4.060"	Drop In								
		065	4.065"	Drop In								
		070	4.070"	Drop In								
		075	4.075"	Drop In								
080	4.080"	Drop In										
085	4.085"	Drop In										
090	4.090"	Drop In										
095	4.095"	Drop In										
100	4.100"	Drop In										
120	4.120"	Drop In										
SN9065	8	STD	4.000"	Drop In	Top	1.20mm .0472"	3.70mm .145"		Steel	Nitride		
		005	4.005"	Drop In								
		025	4.025"	Drop In								
		030	4.030"	Drop In	2nd	1.50mm .0590"	4.15mm .163"		Ductile Iron	Phosphate		
		035	4.035"	Drop In								
		040	4.040"	Drop In	Oil (13 lbs)	3.00mm .1181"	3.80mm .150"		Steel	Chrome		
		045	4.045"	Drop In								
		055	4.055"	Drop In								
		060	4.060"	Drop In								
		065	4.065"	Drop In								
		070	4.070"	Drop In								
		080	4.080"	Drop In								
		100	4.100"	Drop In								
		120	4.120"	Drop In								
		SN9050	8	STD							4.125"	Drop In
				002	4.127"	File Fit						
010	4.135"			Drop In								
012	4.137"			File Fit	2nd	1.20mm .0472"	3.75mm .147"		Ductile Iron	Phosphate		
020	4.145"			Drop In								
022	4.147"			File Fit	Oil (13 lbs)	3.00mm .1181"	3.80mm .150"		Steel	Chrome		
030	4.155"			Drop In								
032	4.157"			File Fit								
040	4.165"			Drop In								
042	4.167"			File Fit								
060	4.185"			Drop In								
062	4.187"			File Fit								



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