

Motorsport Pistons and Cylinders Kits



MAHLE's relationship with Porsche dates back to Porsche's beginning. Together we have developed some of the best competition and sports car engines available throughout the last nine decades.

MAHLE Motorsports North America has taken the extensive experience gained from its relationship with Porsche to develop a series of performance and racing piston and cylinder kits. These kits were designed for high performance applications and are modern adaptations of the original or aftermarket kits; therefore there may be visual differences that are intentional and beneficial to the performance, durability and longevity of the components.



PP98-013



**Slipper Skirt
Forging Design**



PP80-001

The pistons are machined from forgings with narrower and shorter skirts to reduce weight and friction. They are then dual coated, with Phosphate and MAHLE's proprietary Grafal® skirt coating. The phosphate is a dry film lubricant designed to help protect the pin bores from galling and ring grooves from micro-welding. The Grafal® anti-friction skirt coating is designed to reduce drag, wear and noise.

The kits are supplied with modern ring sets made from stronger more durable materials that are dimensionally narrower and shorter to be more conformable providing more consistent contact with the cylinders resulting in increased sealing and oil control.

Motorsport Air-Cooled Cylinders



PC84-001



PC98-001



PC102-001 / 002

The cylinders included in Motorsports air-cooled kits are produced and machined to original equipment tolerances, designed to provide increased performance, durability and longevity. Some applications are available as either a slip-in or machine-in design. The slip-in cylinders are simply a larger internal bore replacement. The machine-in cylinders require the engine cases be machined to a larger bore diameter to accept their larger spigot diameter. The larger spigot diameter is preferable for extreme applications as with highly boosted turbo or competition use engines.



LN103-87.5



LN103-97



LN104-100

MAHLE Motorsport has partnered with LN Engineering to broaden the range of available Porsche applications. The LN “Nickies” cylinders are manufactured from a different aluminum alloy than MAHLE cylinders. The MAHLE Motorsport pistons designed to work with LN liners are manufactured from the compatible alloy and designed specifically for use with LN liners, offering the same performance, durability and longevity.

Motorsport Air-Cooled Applications

Bore	Stroke	Rod	Comp Height	Pin Diam.	Crown Vol	Wght G	Compression Ratio	Alloy	Clearance Guide			Piston (set)	Cylinder(ea)	Kit (set)	
									Meas.	Min	Max				
All Air-cooled CR calculated at 1mm below deck															
PORSCHE 911 and 911S 2.0L (1964-1968)															
1.2, 1.2, 2.0mm Performance Ring Set Included							70.5cc								
80.0mm	66mm	130mm	34mm	22mm	38.8cc	352	10.0	4032	0.250	0.0010	0.0018	PP80-001	PC80-001	PS80-001	
PORSCHE 911 and 911S 2.2L (1969-1971)															
1.2, 1.2, 2.0mm Performance Ring Set Included							70.5cc								
84.0mm	66mm	130mm	34mm	22mm	27.2cc	371	8.5	4032	0.250	0.0010	0.0018	PP84-001	PC84-001	PS84-001	
PORSCHE 911 and 911S 2.4L (1972-1973)															
1.2, 1.2, 2.0mm Performance Ring Set Included							70.5cc								
84.0mm	70.4mm	130mm	34mm	22mm	27.2cc	371	9.0	4032	0.250	0.0010	0.0018	PP84-001	PC84-001	PS84-001	
PORSCHE 356 - Slip-in cylinder case register (30° cylinder heads)															
1.2, 1.2, 2.8mm Performance Ring Set Included							57.5cc	60.5cc							
86.0mm	74mm	135.95mm	27.05mm	22mm	15.8cc	301	10.0	9.5	2618	0.250	0.0004	0.0012	PP86-003N	LN 102-86 *	PS86-003N *
PORSCHE 356 - Slip-in cylinder case register (30° cylinder heads)															
1.2, 1.2, 2.8mm Performance Ring Set Included							60.5cc	63.5cc							
86.0mm	74mm	135.95mm	27.05mm	22mm	18.7cc	305	10.0	9.5	2618	0.250	0.0004	0.0012	PP86-004N	LN 102-86 *	PS86-004N *
PORSCHE 356 - Slip-in cylinder case register (30° cylinder heads)															
1.2, 1.2, 2.8mm Performance Ring Set Included							63.5cc	66.5cc							
86.0mm	74mm	135.95mm	27.05mm	22mm	21.8cc	307	10.0	9.5	2618	0.250	0.0004	0.0012	PP86-005N	LN 102-86 *	PS86-005N *
PORSCHE 911S 2.5L long stroke															
1.2, 1.2, 2.0mm Performance Ring Set Included							70.5cc								
86.7mm	70.4mm	127.8mm	34mm	22mm	25.9cc	401	9.3	4032	0.250	0.0010	0.0018	PP86-002	PC86-002	PS86-002	
PORSCHE 356 - Machine-in 94.5mm cylinder case register (30° cylinder heads)															
1.2, 1.2, 2.8mm Performance Ring Set Included							57.5cc	60.5cc							
91.0mm	74mm	135.95mm	27.05mm	22mm	10.6cc	321	10.0	9.5	2618	0.250	0.0006	0.0014	PP91-001N	LN 102-91 *	PS91-001N *
PORSCHE 356 - Machine-in 94.5mm cylinder case register (30° cylinder heads)															
1.2, 1.2, 2.8mm Performance Ring Set Included							60.5cc	63.5cc							
91.0mm	74mm	135.95mm	27.05mm	22mm	13.6cc	324	10.0	9.5	2618	0.250	0.0006	0.0014	PP91-002N	LN 102-91 *	PS91-002N *
PORSCHE 356 - Machine-in 94.5mm cylinder case register (30° cylinder heads)															
1.2, 1.2, 2.8mm Performance Ring Set Included							63.5cc	66.5cc							
91.0mm	74mm	135.95mm	27.05mm	22mm	16.6cc	332	10.0	9.5	2618	0.250	0.0006	0.0014	PP91-003N	LN 102-91 *	PS91-003N *
PORSCHE 911 2.7L to 2.8L (1973-1977) Carb or Mechanical Injection															
1.2, 1.5, 3.0mm Performance Ring Set Included							68cc								
92.0mm	70.4mm	127.8mm	33.9mm	22mm	21.5cc	425	9.8	2618	0.400	0.0009	0.0017	PP92-004N	LN 103-92 *	PS92-004N *	
*LN cylinders sold through LN distributors; Kit PN shown for reference only															
PORSCHE 911 2.7L to 2.9L (1973-1977) Carb or Mechanical Injection															
1.2, 1.5, 3.0mm Performance Ring Set Included							68cc								
93.0mm	70.4mm	127.8mm	33.9mm	22mm	23.4cc	440	9.8	2618	0.400	0.0010	0.0018	PP93-004N	LN 103-93 *	PS93-004N *	
*LN cylinders sold through LN distributors; Kit PN shown for reference only															
PORSCHE 930 TURBO 3.3L to 3.4L (1978-1992)															
1.2, 1.2, 3.0mm Performance Ring Set Included							90cc								
98.0mm	74.4mm	127mm	32.8mm	23mm	14.2cc	432	7.7	4032	0.250	0.0016	0.0023	PP98-012	PC98-001	PS98-009	
PORSCHE 911 CARRERA 3.2L to 3.4L (1984-1989) Motronic Inj															
1.2, 1.2, 3.0mm Performance Ring Set Included							90cc								
98.0mm	74.4mm	127mm	32.8mm	23mm	35.8cc	507	10.1	2618	0.250	0.0006	0.0014	PP98-013	PC98-001	PS98-010	

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Motorsport Air-Cooled Applications

Bore	Stroke	Rod	Comp Height	Pin Diam.	Crown Vol	Wght G	Compression Ratio	Alloy	Clearance Guide			Piston (set)	Cylinder(ea)	Kit (set)
Meas.	Min	Max												
PORSCHE 911 3.0L to 3.2L (1976-1983) Carb or Mechanical Injection														
1.2, 1.2, 3.0mm Performance Ring Set Included							90cc							
98.0mm	70.4mm	127.8mm	33.7mm	22mm	40cc	500	10.2	2618	0.250	0.0006	0.0014	PP98-014	PC98-001	PS98-014
PORSCHE 911 3.0L to 3.2L (1976-1983) Motronic Inj.														
1.2, 1.2, 3.0mm Performance Ring Set Included							90cc							
98.0mm	70.4mm	127.8mm	34mm	22mm	38.5cc	494	10.0	2618	0.250	0.0006	0.0014	PP98-015	PC98-001	PS98-015
PORSCHE 930 TURBO 3.0L to 3.2L (1975-1977)														
1.2, 1.2, 3.0mm Performance Ring Set Included							90cc							
98.0mm	70.4mm	127.8mm	33.7mm	22mm	15.8cc	415	7.5	4032	0.250	0.0010	0.0018	PP98-016	PC98-001	PS98-016
PORSCHE 911 3.2L to 3.5L (1984-1989) - Machine-in 105mm cylinder case register														
1.2, 1.5, 3.0mm Performance Ring Set Included							90cc							
100.0mm	74.4mm	127mm	32.8mm	23mm	35cc	473	10.3	2618	0.500	0.0010	0.0018	PP100-009N	LN 103-100/105 *	PS100-009N *
*LN cylinders sold through LN distributors; Kit PN shown for reference only														
PORSCHE 911 3.3L to 3.5L 930T (1978-1992) - Machine-in Ø105mm cylinder case register														
1.2, 1.5, 3.0mm Performance Ring Set Included							90cc							
100.0mm	74.4mm	127mm	32.8mm	23mm	0.5cc	428	7.0	2618	0.250	0.0010	0.0018	PP100-010N	** LN 103-100/105 *	PS100-010N *
*LN cylinders sold through LN distributors; Kit PN shown for reference only														
**Hard Anodized Top Ring Groove For Extreme Duty Applications														
PORSCHE 911 3.0L to 3.3L CIS Inj. (1976-1983) - Machine-in Ø105mm cylinder case register														
1.2, 1.5, 3.0mm Performance Ring Set Included							90cc							
100.0mm	70.4mm	127.8mm	34mm	22mm	35cc	474	9.8	2618	0.250	0.0010	0.0018	PP100-011N	LN 103-100/105 *	PS100-011N *
*LN cylinders sold through LN distributors; Kit PN shown for reference only														
PORSCHE 964 NA 3.6L to 3.8L (also fits 993) (1989-1998) - Slip-in Ø107mm cylinder case register														
1.5, 1.5, 3.0mm Performance Ring Set Included							90cc							
102.0mm	76.4mm	127mm	31.5mm	23mm	44.5cc	476	12.6	4032	0.450	0.0010	0.0018	PP102-011	PC102-002	PS102-017
PORSCHE 964 NA 3.6L to 3.8L (also fits 993) (1989-1998) - Machine-in Ø109mm cylinder case register														
1.5, 1.5, 3.0mm Performance Ring Set Included							90cc							
102.0mm	76.4mm	127mm	31.5mm	23mm	44.5cc	476	12.6	4032	0.450	0.0010	0.0018	PP102-011	PC102-001	PS102-018
PORSCHE 993 TURBO 3.6L to 3.8L - Machine-in Ø109mm cylinder case register, shorter 114.5mm tall cylinder														
1.5, 1.5, 3.0mm Performance Ring Set Included							90cc							
102.0mm	76.4mm	127mm	31.8mm	23mm	9.7cc	435	8.1	4032	0.590	0.0010	0.0018	PP102-012	PC102-003	PS102-019
PORSCHE 964 / 993 TURBO 3.6L to 3.8L - Slip-in Ø107mm cylinder case register														
1.5, 1.5, 3.0mm Performance Ring Set Included							90cc							
102.0mm	76.4mm	127mm	31.8mm	23mm	22.6cc	452	9.3	4032	0.470	0.0010	0.0018	PP102-013	PC102-002	PS102-020
PORSCHE 964 / 993 TURBO 3.6L to 3.8L - Machine-in Ø109mm cylinder case register														
1.5, 1.5, 3.0mm Performance Ring Set Included							90cc							
102.0mm	76.4mm	127mm	31.8mm	23mm	22.6cc	452	9.3	4032	0.470	0.0010	0.0018	PP102-013	PC102-001	PS102-021
PORSCHE 993 RSR style 3.6L to 3.8L (also fits 964) (1989-1998) - Slip-in Ø107mm cylinder case register														
1.5, 1.5, 3.0mm Performance Ring Set Included							90cc							
102.0mm	76.4mm	127mm	31.5mm	23mm	38.1cc	486	11.4	4032	0.315	0.0010	0.0018	PP102-014	PC102-002	PS102-022
PORSCHE 993 RSR style 3.6L to 3.8L (also fits 964) (1989-1998) - Machine-in Ø109mm cylinder case register														
1.5, 1.5, 3.0mm Performance Ring Set Included							90cc							
102.0mm	76.4mm	127mm	31.5mm	23mm	38.1cc	486	11.4	4032	0.315	0.0010	0.0018	PP102-014	PC102-001	PS102-023
PORSCHE 964 / 993 3.6L to 3.9L (1989-1998) - Machine-in Ø109mm cylinder case register														
1.2, 1.5, 3.0mm Performance Ring Set Included							90cc							
104.0mm	76.4mm	127mm	31.8mm	23mm	36.2cc	528	11.4	2618	0.500	0.0011	0.0019	PP104-001N	LN 104-104 *	PS104-001N *
*LN cvlinders sold through LN distributors; Kit PN shown for reference only														

Motorsport Water-Cooled Applications

Bore	Stroke	Rod	Comp Height	Pin Diam.	Crown Vol	Wght G	Compression Ratio	Alloy	Clearance Guide			Piston (set)
									Meas.	Min	Max	
All Water-cooled CR calculated at zero deck clearance and 1mm head gasket thickness												
PORSCHE Cayman 3.4L with replacement cast iron cylinder liner												
1.2, 1.5, 2.0mm Performance Ring Set Included							39cc					
96.0mm	78mm	144.98mm	32.35mm	22mm	-9.6cc	395	11.1	4032	0.500	0.0008	0.0016	197848980 *
*Hard Anodized Top Ring Groove												
PORSCHE Cayman 3.4L with replacement Nikasil cylinder liner												
1.2, 1.5, 2.0mm Performance Ring Set Included							39cc					
96.0mm	78mm	144.98mm	32.35mm	22mm	-9.6cc	395	11.1	4032	0.500	0.0008	0.0016	197849080 *
*Hard Anodized Top Ring Groove												
PORSCHE 996 3.6L with replacement cast iron cylinder liner												
1.2, 1.5, 2.0mm Performance Ring Set Included							38cc					
96.0mm	82.8mm	141.99mm	32.95mm	22mm	-13.3cc	401	11.3	4032	0.500	0.0008	0.0016	197849180 *
*Hard Anodized Top Ring Groove												
PORSCHE 996 3.6L with replacement Nikasil cylinder liner												
1.2, 1.5, 2.0mm Performance Ring Set Included							38cc					
96.0mm	82.8mm	141.99mm	32.95mm	22mm	-13.3cc	401	11.3	4032	0.500	0.0008	0.0016	197849280 *
*Hard Anodized Top Ring Groove												
PORSCHE 997 3.8L with replacement cast iron cylinder liner												
1.0, 1.0, 2.0mm Performance Ring Set Included							38cc					
99.0mm	82.8mm	141.99mm	32.95mm	22mm	-13.2cc	409	11.8	4032	0.500	0.0008	0.0016	197837098 *
100.0mm						423	12.0					197837037 *
*Hard Anodized Top Ring Groove												
PORSCHE 997 3.8L with replacement Nikasil cylinder liner												
1.0, 1.0, 2.0mm Performance Ring Set Included							38cc					
99.0mm	82.8mm	141.99mm	32.95mm	22mm	-13.2cc	409	11.8	4032	0.500	0.0008	0.0016	197846098 *
100.0mm						423	12.0					197846037 *
*Hard Anodized Top Ring Groove												
PORSCHE 944 TURBO 2.5L for use in factory aluminum bores only												
1.2, 1.5, 3.0mm Performance Ring Set Included							54cc					
100.5mm	78.9mm	150mm	40.8mm	24mm	-21cc	473	8.6	2618	0.500	0.0036	0.0044	930070756 *
101.0mm						479	8.6					930070776 *
*PowerPak Plus 2618 Alloy & Hard Anodized Top Ring Groove For Extreme Duty Applications												
PORSCHE 968 TURBO 3.0L for use in factory aluminum bores only												
1.2, 1.5, 3.0mm Performance Ring Set Included							56cc					
104.5mm	87.8mm	150mm	36mm	24mm	-32cc	501	8.8	2618	0.400	0.0036	0.0044	930130214 *
*PowerPak Plus 2618 Alloy & Hard Anodized Top Ring Groove For Extreme Duty Applications												

GRAFAL® Skirt Coating

MAHLE proprietary GRAFAL® anti-friction skirt coating is like no other on the market. It is graphite impregnated to reduce drag. GRAFAL® offers a unique cushioning property that absorbs harsh contact between the piston skirt and the cylinder bore.



Ultra Flat Ring Grooves

Every MAHLE Motorsport piston is machined to exacting tolerances, with focused attention given to the radial flatness of the ring grooves. A flat ring groove is essential in achieving and maintaining the best ring seal possible.

Slipper Skirt Forging

Designed through many years of R&D working with top Formula 1 teams, the "Slipper Skirt" forging is used exclusively in all MAHLE Motorsport piston kits. A true Slipper Skirt forging offers many benefits over the standard "Full Round" design, but the technology runs much deeper than looks alone.

Motorsport Accessories



Description

Part Number

Piston Pins

22 x 13 x 58.11mm CH 112g	9900106
22 x 12 (tapered) x 52mm CH 101g	9894428
23 x 13.5 x 55.6mm CH 119g	9299621
23 x 13.9 x 63.5mm CH 131g	9301712
23 x 13.5 x 57.404mm R 123g	9298392
23 x 13 (tapered) x 50mm R 98g	4394409

Clips (each)

22 x 1.6mm no tang Clip	2042968
23 x 1.6mm no tang Clip	9315805
.912" x 1.6mm no tang Clip	6458129

Rings

Finish Bore	Description	Set Part Number
80.00mm	1.2, 1.2, 2.0mm File Fit	PR80MS-12
84.00mm	1.2, 1.2, 2.0mm File Fit	PR84MS-12
86.70mm	1.2, 1.2, 2.0mm File Fit	PR86MS-12
92.00mm	1.2, 1.5, 3.0mm File Fit	PR92MS
95.00mm	1.2, 1.5, 3.0mm File Fit	PR95MS
98.00mm	1.2, 1.5, 3.0mm File Fit	PR98MS
98.00mm	1.2, 1.2, 3.0mm File Fit	PR98MS-12
100.00mm	1.2, 1.5, 3.0mm File Fit	PR100MS
102.00mm	1.46, 1.46, 2.99mm File Fit	PR102MS-15
104.00mm	1.2, 1.5, 3.0mm File Fit	PR104MS

