

# Porsche Ring Sets, Pins, & Clips

Finish Bore	Description	Set Part Number	Description	Set Part Number
<b>Porsche Ring Sets</b>				
80.00 mm	1.2, 1.2, 2.0mm File Fit (6cyl)	PR80MS-12	22 x 12/15.7 x 52mm Taper CH 101g	9894428
84.00 mm	1.2, 1.2, 2.0mm File Fit (6cyl)	PR84MS-12	22 x 13 x 58.11mm CH 112g	9900106
86.70 mm	1.2, 1.2, 2.0mm File Fit (6cyl)	PR86MS-12	23 x 13 x 50mm Taper R 98g	4394409
89.00 mm	1.2, 1.5, 3.0mm File Fit (6cyl)	PR89MS	22 x 13 x 52mm CH 101g	1979122
90.00 mm	1.2, 1.5, 3.0mm File Fit (6cyl)	PR90MS	23 x 13.5 x 55.6mm CH 119g	9299621
92.00 mm	1.2, 1.5, 3.0mm File Fit (6cyl)	PR92MS	23 x 13.5 x 57.404mm R 124g	9298392
93.00 mm	1.2, 1.5, 3.0mm File Fit (6cyl)	PR93MS	23 x 13.9 x 63.5mm CH 131g	9301712
95.00 mm	1.2, 1.5, 3.0mm File Fit (6cyl)	PR95MS	24 x 15 x 58.1mm CH 125g	9900079
98.00 mm	1.2, 1.5, 3.0mm File Fit (6cyl)	PR98MS		
98.00 mm	1.2, 1.2, 3.0mm File Fit (6cyl)	PR98MS-12	<b>Clips (each) w/o tang</b>	
100.00 mm	1.2, 1.5, 3.0mm File Fit (6cyl)	PR100MS	22mm x 1.6mm Round Wire Lock	2042968
102.00 mm	1.2, 1.2, 3.0mm File Fit (6cyl)	PR102MS-12	23mm x 1.6mm Round Wire Lock	9315805
102.00 mm	1.46, 1.46, 2.99mm File Fit (6cyl)	PR102MS-15	24mm x 1.6mm Round Wire Lock	9900539
104.00 mm	1.2, 1.5, 3.0mm File Fit (6cyl)	PR104MS		
<b>Piston Pins</b>				
86.00 mm	1.2, 1.2, 2.8mm Drop In (4cyl)	8600MS-12		
91.00 mm	1.2, 1.2, 2.8mm File Fit (4cyl)	1978643		
96.00 mm	1.2, 1.5, 2.0mm File Fit (6cyl) NIKASIL	1978504		
96.00 mm	1.2, 1.5, 2.0mm File Fit (6cyl)	1978505		
99.00 mm	1.0, 1.0, 2.0mm File Fit (1cyl)	3903MS-112-1		
100.00 mm	1.0, 1.0, 2.0mm File Fit (1cyl)	3942MS-112-1		
101.00 mm	1.2, 1.5, 3.0mm File Fit (4cyl)	9300402		
100.50 mm	1.2, 1.5, 3.0mm File Fit (1cyl) ALUSIL	1977212		
104.50 mm	1.2, 1.5, 3.0mm File Fit (4cyl)	9300400		

## Final Assembly Tech Tips

### Compression Ratio

The compression ratio shown in the application guide is calculated at 1mm (0.040") deck clearance for Air-Cooled applications. For Water-Cooled at zero deck clearance and a 1mm head gasket thickness. The compression ratio of your specific application will vary depending on the deck clearance that the engine is built with.

### Piston Ring Gaps

The rings should be checked in the cylinder to ensure that the end gaps are sufficient. Recommendations and additional information is provided in the ring instructions located on page 7. Should you require additional ring end gap, the rings should be gapped before installation on the piston.

### Piston Orientation In Engine

For pistons that have an arrow laser etched on the crown, the pistons are installed so that the arrow points toward the flywheel.

For pistons with slanted dome and symmetric valve pockets, the pistons are installed so that the short end of the dome is located under the spark plug.

### Piston to Valve Clearance

Valve to piston clearance depends on many factors; including the piston crown configuration, valve train and camshaft characteristics, and cylinder head design. The camshaft manufacturer can supply the minimum recommended valve to piston clearance for your specific camshaft/valve train combination. After the camshaft is "degreed" correctly you may check the valve clearance using either modeling clay or light spring method. Minimum recommended clearance for valve face to valve pocket floor of the piston is 0.080" for the intake valve, and 0.100" for the exhaust valve. Minimum radial clearance is 0.050" radially for all valves.

**NOTICE:** Be sure to check the clearances of MAHLE pistons in relation to other engine components such as valves, connecting rods, and oil squirters BEFORE running the engine. These components may need adjustment in order to function properly with MAHLE pistons.

### Piston to Cylinder Wall Clearance

MAHLE machines the proper piston to cylinder wall clearance into every piston and cylinder kit.

The recommended piston to cylinder wall measurement and location is listed on the outside label of the box. The piston measurement location is measured up from the bottom of the piston skirt. For the cylinder, the measurement location is measured down from the top of the cylinder. The cylinder should be measured in the same axis as the pistons (thrust / anti-thrust). It is worth noting that the piston to wall clearance value specified is measured over the Grafal® skirt coating.

### Tech Note

Prior to final engine assembly, the top, bottom, and face of each ring plus the cylinder bore should be lightly coated with clean, light-weight, conventional motor oil. DO NOT dip the entire piston as this may lead to improper seating of the rings.

Additional tech information and informative technical videos covering the above points are located on our website as well as the MAHLE Motorsport YouTube channel.