

# POWER HEAD

|                                              | STANDARD       | FIRST OVERSIZED               | SECOND OVERSIZED  | THIRD OVERSIZED   |
|----------------------------------------------|----------------|-------------------------------|-------------------|-------------------|
| <b>Cylinder bore<br/>(nominal dimension)</b> |                |                               |                   |                   |
| <b>124</b>                                   | 54 mm (2.125") | 54.25 mm (2.135")             | 54.50 mm (2.145") | 54.75 mm (2.155") |
| <b>174</b>                                   | 62 mm (2.440") | 62.25 mm (2.450")             | 62.50 mm (2.460") | 62.75 mm (2.470") |
| <b>244</b>                                   | 72 mm (2.834") | 72.25 mm (2.844")             | 72.50 mm (2.854") | not available     |
| <b>281</b>                                   | 76 mm (2.992") | 76.25 mm (3.002")             | 76.50 mm (3.012") | not available     |
| <b>406</b>                                   | 84 mm (3.307") | 84.25 mm (3.317")             | 84.50 mm (3.327") | not available     |
|                                              |                | <b>WHEN FITTING NEW PARTS</b> |                   |                   |
|                                              |                | <b>MINIMUM</b>                | <b>MAXIMUM</b>    | <b>WEAR LIMIT</b> |
| <b>Piston to cylinder wall clearance</b>     |                |                               |                   |                   |
| <b>124-174</b>                               |                | 0.060 mm (.002")              | 0.085 mm (.003")  | 0.14 mm (.006")   |
| <b>244-281-406</b>                           |                | 0.070 mm (.003")              | 0.090 mm (.0035") | 0.18 mm (.007")   |
| <b>Piston ring end gap</b>                   |                |                               |                   |                   |
| <b>124</b>                                   |                | 0.15 mm (.006")               | 0.30 mm (.011")   | 0.8 mm (.031")    |
| <b>174-244</b>                               |                | 0.20 mm (.008")               | 0.35 mm (.014")   | 1.0 mm (.039")    |
| <b>281-406</b>                               |                | 0.25 mm (.010")               | 0.40 mm (.016")   | 1.2 mm (.047")    |
| <b>Squish area measurement</b>               |                |                               |                   |                   |
| <b>124</b>                                   |                | not applicable                |                   |                   |
| <b>174</b>                                   |                | 1.2 mm (.047")                | 1.6 mm (.062")    |                   |
| <b>244 (MX)</b>                              |                | 1.4 mm (.055")                | 1.8 mm (.070")    |                   |
| <b>244 (Qualifier)</b>                       |                | 1.8 mm (.070")                | 2.2 mm (.086")    |                   |
| <b>281</b>                                   |                | 1.7 mm (.066")                | 2.1 mm (.082")    |                   |
| <b>406</b>                                   |                | not applicable                |                   |                   |
| <b>Compression ratio (uncorrected)</b>       |                |                               |                   |                   |
| <b>124</b>                                   |                | 15 to 1                       | 16 to 1           |                   |
| <b>174</b>                                   |                | 13.2 to 1                     | 14.2 to 1         |                   |
| <b>244 (MX)</b>                              |                | 13 to 1                       | 14 to 1           |                   |
| <b>244 (Qualifier)</b>                       |                | 12 to 1                       | 13 to 1           |                   |
| <b>281</b>                                   |                | 12 to 1                       | 13 to 1           |                   |
| <b>406 (MX)</b>                              |                | 11.4 to 1                     | 12.4 to 1         |                   |
| <b>406 (Qualifier)</b>                       |                | 10.3 to 1                     | 11.3 to 1         |                   |

|                                                                                           | WHEN FITTING NEW PARTS                                                                                  |                                         | WEAR LIMIT |
|-------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|-----------------------------------------|------------|
|                                                                                           | MINIMUM                                                                                                 | MAXIMUM                                 |            |
| <b>Exhaust port height</b><br>124<br>174<br>244<br>281<br>406 (MX)<br>406 (Qualifier)     | 13 mm (.530")<br>27 mm (1.063")<br>30 mm (1.181")<br>30 mm (1.181")<br>34 mm (1.338")<br>34 mm (1.338") |                                         |            |
| <b>Exhaust port width</b><br>124-174<br>244-281<br>406                                    | 40 mm (1.575")<br>52 mm (2.047")<br>55 mm (2.165")                                                      |                                         |            |
| <b>Transfer port height</b><br>124<br>174<br>244-281<br>406                               | 13 mm (.511")<br>12.8 mm (.504")<br>15 mm (.590")<br>17.5 mm (.688")                                    |                                         |            |
| <b>Rotary valve disc opens BTDC</b><br>124-244 (MX)<br>174-244-281<br>(Qualifier)<br>406  | 140°<br>137°<br>not applicable                                                                          |                                         |            |
| <b>Rotary valve disc closes ATDC</b><br>124-244 (MX)<br>174-244-281<br>(Qualifier)<br>406 | 85°<br>75°<br>not applicable                                                                            |                                         |            |
| <b>Cylinder sleeve outside diameter</b><br>124<br>174<br>244<br>281<br>406                | 59.124 mm (2.327")<br>68.1 mm (2.681")<br>79.12 mm (3.115")<br>82.124 mm (3.233")<br>90.126 mm (3.548") | 68.121 mm (2.682")<br>79.14 mm (3.116") |            |

|                                          |     | WHEN FITTING NEW PARTS |                    | WEAR LIMIT |
|------------------------------------------|-----|------------------------|--------------------|------------|
|                                          |     | MINIMUM                | MAXIMUM            |            |
| Cylinder inside dia.<br>(without sleeve) | 124 | 59 mm (2.322")         |                    |            |
|                                          | 174 | 68 mm (2.677")         | 68.03 mm (2.678")  |            |
|                                          | 244 | 79 mm (3.110")         | 79.035 mm (3.111") |            |
|                                          | 281 | 82 mm (3.228")         |                    |            |
|                                          | 406 | 90 mm (3.543")         | 90.035 mm (3.544") |            |
| Cylinder/sleeve<br>interference fit      | 124 | 0.124 mm (.0048")      |                    |            |
|                                          | 174 | 0.072 mm (.003")       | 0.121 mm (.005")   |            |
|                                          | 244 | 0.101 mm (.004")       | 0.152 mm (.006")   |            |
|                                          | 281 | 0.124 mm (.0048")      |                    |            |
|                                          | 406 | 0.09 mm (.0035")       | 0.146 mm (.0057")  |            |

| CRANKSHAFT/CRANKCASE                   |                     |                   |                   |                 |
|----------------------------------------|---------------------|-------------------|-------------------|-----------------|
| Crankshaft end play                    | 0.1 mm (.004")      | 0.3 mm (.012")    |                   |                 |
| Crankshaft excentricity                |                     | 0.05 mm (.002")   | 0.1 mm (.004")    |                 |
| Crankshaft blade width (nominal)       | 124                 | 48.3 mm (1.902")  |                   |                 |
|                                        | 174                 | 46 mm (1.811")    |                   |                 |
|                                        | 244-281             | 51.18 mm (2.015") |                   |                 |
|                                        | 406                 | 64.94 mm (2.557") |                   |                 |
| Connecting rod side play in crankshaft | 124-174-244-281     | 0.2 mm (.008")    | 0.53 mm (.020")   | 1.0 mm (.039")  |
|                                        | 406                 | 0.6 mm (.023")    | 0.93 mm (.036")   | 1.4 mm (.055")  |
| Crankpin interference fit              | 124-174-244-281-406 | 0.076 mm (.003")  | 0.095 mm (.0037") |                 |
| Connecting rod to crankpin clearance   | 124-174-244-281     | 0.028 mm (.001")  | 0.039 mm (.0015") | 0.08 mm (.003") |
|                                        | 406                 | 0.035 mm (.0014") | 0.046 mm (.0018") | 0.08 mm (.003") |