Douglas Piston Dimensions

Excerpt from the 1938 Polson Pistons Catalogue

And the October 1939 Catalogue Supplement.

Provided by Bob McGrath

Australia always suffered from poor service back up from overseas manufacturers. Slow sea borne freight taking several months to fulfil even the simplest order exacerbated the problem. This encouraged local firms like Polsons to take up the slack

 The Douglas pistons listed in the ‘38/39 catalogues are as follows,

 **Piston Dimensions**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Model | Year | Stock No | Bore | Length | Comp Height | Ring Equip | Distance between Bosses | Piston pinDiameter |
| EW 350cc SV | 1926-29 | **CY51** | 60.8m | 53mm | 24m | 2x3/32 | 1” | 0.500” |
| TS-CW | 1914-25 | **CY52****CY53** | 60.8m60.8m | 56m55m | 27m27m | 2x3/322x4m | 1-5/16”1-5/16” | 0.375”0.375” |
| 350cc SV Dry Sump | 1927-30 | **CY54** | 60.8m | 2” | 27/32 | 4x3/32 | 1 | 0.500” |
| 350cc SV Cotswold 5Y1 | 1935-6 | CY291 | 60.88 | 2 1/8” | 63/64 | 2x3/322x1/8 | 1-1/16” | 0.500” |
| 4.9 Dirt Track |  | CY277LX | 62.25 | 2-5/32 | 1” | 2-1/8 | 1-1/8” | 0.625” |
| 600cc SV | 1930-34 | CY50 | 68m | 63.5m | 33m | 4-3/32 | 1-3/16” | 0.625” |
| 500cc SV Transverse Twin 5Y2 Blue Endeavour | 1935-36 | CY312 | 68m | 2-13/32 | 1-1/32 | 2x3/322x5/32 | 1-3/16” | 0.625” |
| 596cc SV E28, F28 | 1927-29 | **CY144** | 68m | 57m | 27.5 | 2-3/32 | 1-3/16” | 0.562” |
| 600cc Low Comp | 1929-30 | **CY145** | 68m | 2-3/32 | 29/32 | 3-3/32 | 1-3/16” | 0.562” |
| 600cc SV | 1936-37 | CY287 | 74m | 2-13/32 | 1-1/32 | 2-3/322-5/32 | 1-1/4” | 0.625” |

**Notes:**

**TS & CW models**.

These were bundled into the same line in the 1938 catalogue exactly as displayed in the table above. Why this is so I don’t know. I assume **CY52** was for the TS and **CY53** for the CW. They do not appear in the October 1939 supplement but WWII had started the month before. I have no more information.

**Piston Material**

 The **bold** piston stock numbers in column three denote a cast iron piston.

The LX suffix on the Dirt Track piston denotes a Lo-Ex piston, an aluminium alloy with a very small thermal expansion co-efficient. It contains approximately 14% silicon, 2% nickel and 1% each of copper and magnesium. It has been used extensively and successfully over the years for all types of pistons.

The remaining pistons were made of Hydraloy, an aluminium alloy trade name which seems lost in the mists of time. Nothing known at this time.

**Cam Grinding of Pistons.**

Cam grinding was a comparatively new process when the 1938 Catalogue was produced but Polson were firmly in favour of it. For motorcycle pistons they advised as follows,

“Owing to excessive heat and cylinder distortion, difficulty is sometimes experienced in eliminating the possibility of seizure and/or slap. Cam grinding usually overcomes these tendencies and some manufacturers such as Indian, Harley and Triumph have adopted cam grinding as standard practice. Special cam clearances are required, depending upon the design of the piston and the clearances for those pistons which we specially recommend for cam grinding appear in the list below. Any plain skirt or T slot piston in the Polson Motorcycle range can be cam ground to advantage.”

The list Polson mentions above are all aluminium Lo-Ex pistons for Indian, Harley and Triumph. No mention is made of cast iron pistons.

All Douglas pistons listed are plain skirt pistons. No Douglas specific cam grinding advice is given.

**Standard grinding**

Although Polson recommended and practiced cam grinding it appears not every engine reconditioning firm was equipped to do so. Consequentially Polson also gave the following finishing instructions for air cooled motorcycle engines.

**Cast Iron Pistons**

|  |  |  |  |
| --- | --- | --- | --- |
| Cyl. Bore-Inches | 2-2,1/2 | 2,1/2-3 | 3-3,1/2 |
| Top Land | .009 | .011 | .013 |
| 2nd Land | .007 | .008 | .009 |
| 3rd Land | .006 | .006 | .007 |
| 4th Land | .006 | .006 | .007 |
| Skirt  | .002 | .0025 | .003 |

**Hydraloy Pistons**

|  |  |  |  |
| --- | --- | --- | --- |
| Cyl. Bore-Inches | 2-2,1/2 | 2,1/2-3 | 3-3,1/2 |
| Top Land | .015 | .018 | .021 |
| 2nd Land | .010 | .012 | .014 |
| 3rd Land | .010 | .012 | .014 |
| 4th Land | .010 | .012 | .014 |
| Skirt Top | .0045 | .006 | .007 |
| Skirt Bottom | .003 | .0045 | .0055 |

Lo-Ex Pistons

|  |  |  |  |
| --- | --- | --- | --- |
| Cyl. Bore-Inches | 2-2,1/2 | 2.1/2-3 | 3-3,1/2 |
| Top Land | .015 | .018 | .021 |
| 2nd Land | .010 | .012 | .014 |
| 3rd Land | .010 | .012 | .014 |
| 4th Land | .010 | .012 | .014 |
| Skirt Top | .004 | .005 | .006 |
| Skirt Bottom | .0025 | .0035 | .0045 |