



SQ CHEETAH 125

TECHNICAL SPECIFICATIONS



VERSION 3 / 2013
UPDATED JANUARY 3rd, 2013



SQ CHEETAH 125 ENGINE TECHNICAL SPECIFICATIONS

Preamble:

The following are the Technical Specifications for the SQ CHEETAH 125 engine, as approved by the Australian Karting Association.

This engine is approved for use in the following classes.

- Junior Performance
- Tag 125
- Restricted 125
- Open Performance

Unless otherwise specified, the engines must be original in all their components according to the SQ CHEETAH 125 drawings.

Any removal, addition or polishing of material is strictly forbidden. Sandblasting, glass bead blasting, peening, acid etching, spark eroding and/or any other method of metal removal or displacement is not allowed.

The use of thermal barrier coatings / ceramic coatings on or in the engine / engine components and on or in exhaust components is prohibited.

The use of anti friction coatings on or in the engine / engine components is prohibited. OEM pistons are exempt.

ANY ALTERATIONS / MODIFICATIONS ARE STRICTLY PROHIBITED EXCEPT AS SPECIFICALLY AUTHORISED WITHIN THESE SPECIFICATIONS.

IF THESE SPECIFICATIONS DO NOT SAY YOU CAN MAKE A MODIFICATION, THEN YOU CANNOT.

SQ 1.01

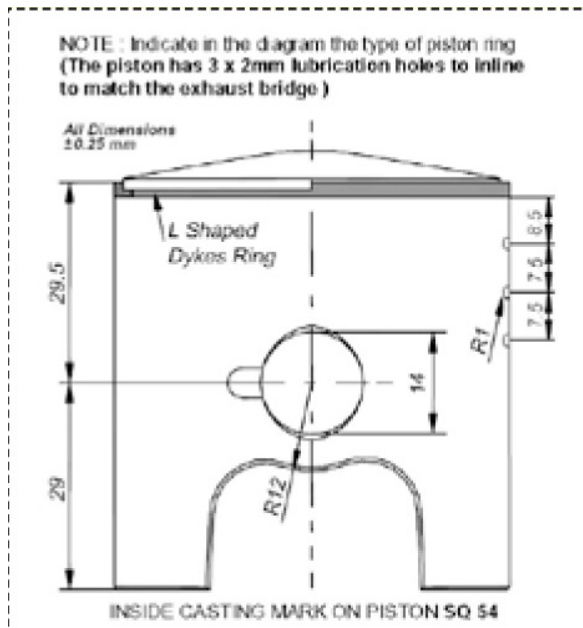
| A - Characteristics | | C - Materials | |
|--|-------------------------------------|---------------------------------------|---------------|
| Cylinder volume | 124.6cc | Cylinder wall | Alloy Nikasil |
| Bore | 54.00 | Cylinder | Alloy |
| Theoretical max. bore | 54.288 | Cylinder head | Alloy |
| Stroke | 54.00 | Crankcase / sump | Alloy |
| Cooling system | Water | Connecting rod | SQ Forged |
| Air admission system | Tillotson HL-360a | | |
| No of carburetion systems | 1 | D - Tolerances | |
| No of transfer ports in the cylinder | 3 | Opening angles | +/- 2 degrees |
| No of exhaust ports | 2 | Combustion chamber volume | 10cc min. |
| Shape of combustion chamber | Spherical 13 degrees | Angles | +/- 2 degrees |
| Volume of the combustion chamber | 10cc | Stroke | +/- 0.5mm |
| Length between of the axis of connecting rod | 102mm | Length between axis of connecting rod | +/-0.3mm |
| Ignition make | SQ – Bright Spark | Dimensions on machined surface | |
| Ignition model | SQ – Bright Spark | < 25mm | +/- 0.5mm |
| | | 25-60mm | +/-0.8mm |
| B – Opening angles | | > 60mm | +/- 1.5mm |
| Inlet | N/A | Dimensions on rough cast surface | |
| Transfer | 122 Max. Transfer 128 Max. Boost | < 25mm | +/- 1mm |
| Exhaust | 171 Max. Exhaust | 25-60mm | +/-1.5mm |
| Inlet opens before TDC | N/A | > 60mm | +/- 3mm |
| Inlet closes before LDC | N/A | | |



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| | |
|--------------------------|--------------------------|
| E - Piston | |
| NO of piston rings | 1 (L shaped Dykes ring) |
| Overall length | 58.5 mm |
| Radius of crown | 13 degrees OEM SOFA |
| Crown to pin | 29.5 mm+/- 0.25mm |
| F – Piston Pin (Gudgeon) | |
| Material | Metal - Magnetic |
| Length | 43.8 mm |
| Inside diameter | 9.25 mm |
| Outside diameter | 14 mm |

Exhaust and Inlet Timing Reading Lines



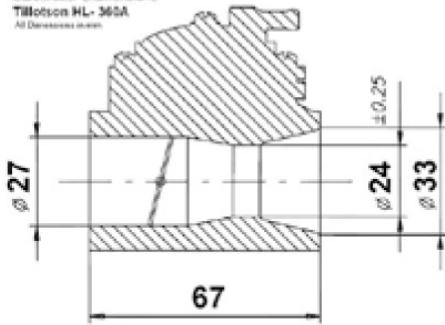
| | |
|------------------------|--------------------|
| G - Gaskets | |
| Barrel gasket material | Any |
| Minimum thickness | 0.1 mm |
| Maximum thickness | 2 mm |
| Cylinder head gasket | No Gasket - Has O- |
| Minimum thickness | N/A |
| Maximum thickness | N/A |



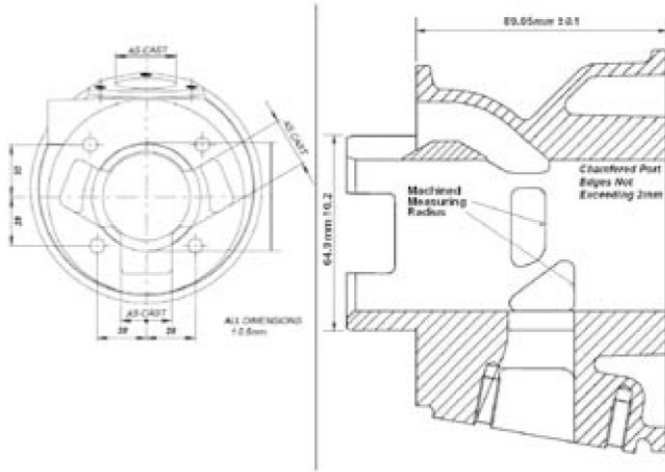
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NOTE : Distance from the cylinder centre may include an eventual spacer located before the carburettor

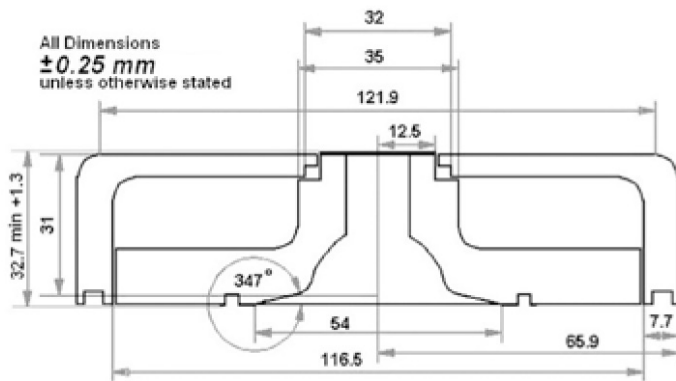
Carburettor Dimensions
Tillotson HL-360A
All Dimensions in mm



Carburettor Location



Drawing of Cylinder Development

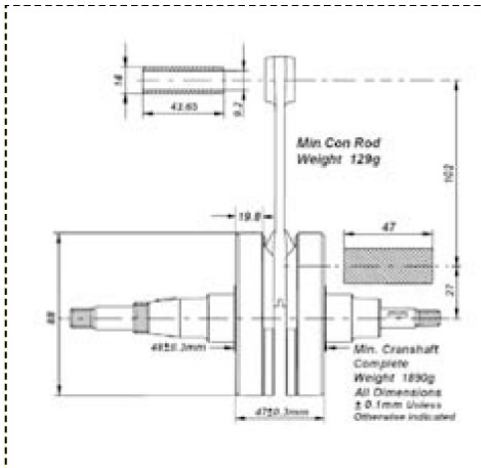


Drawing of the Combustion Chamber and Cylinder Head

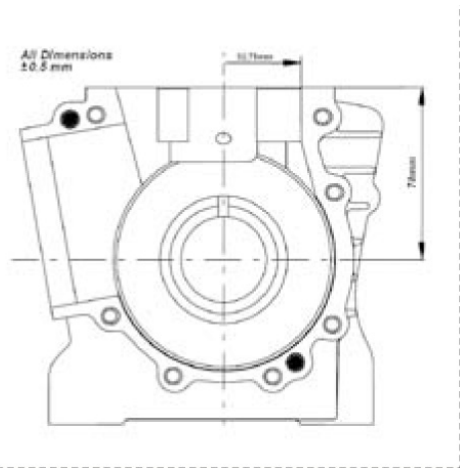


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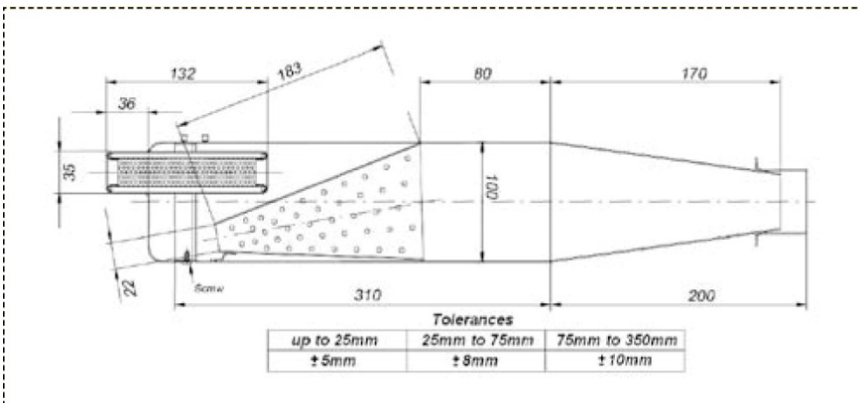
Drawing of the Crankshaft



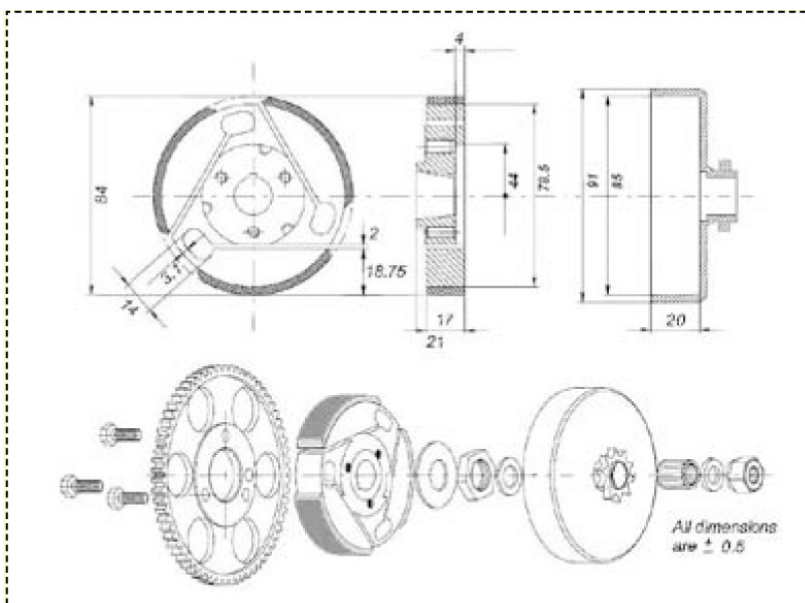
Drawing of the Interior of the Sump



Drawing of Silencer and Components

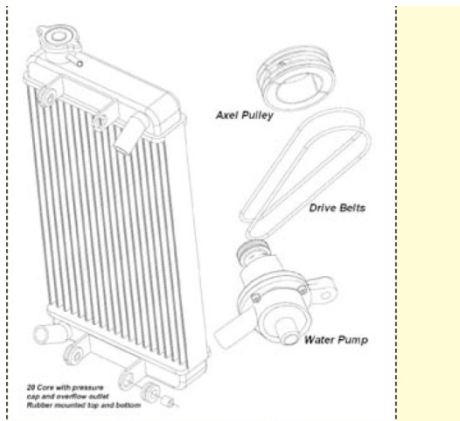


Clutch Description and Sketch of Parts

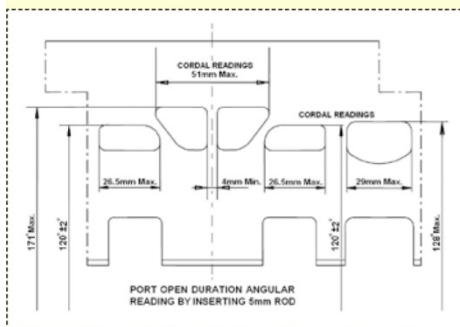




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Radiator Description and Sketch of Parts



SQ CheetaH engine must have “machined scallops” in the roof of the two exhaust ports and two main transfer ports.

SQ 1.02 Non-Tech Items:

1. The colour of the cylinder head cover.