



SQ CHEETAH 125

TECHNICAL SPECIFICATIONS



VERSION 1 / 2012
UPDATED JANUARY 1st, 2012



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		

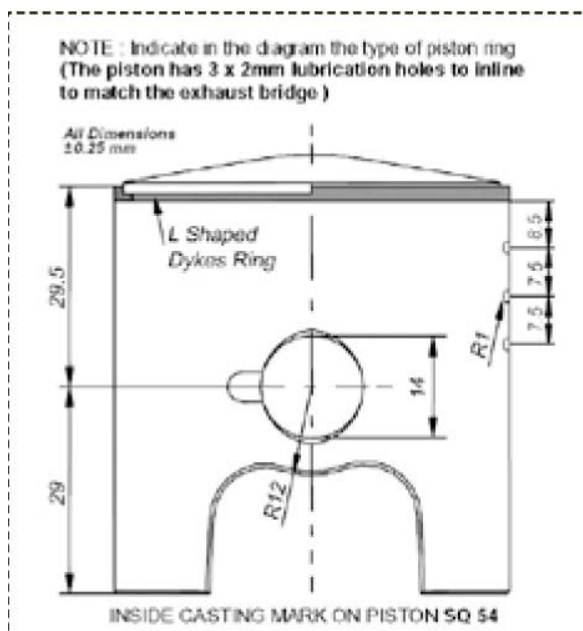


SQ CHEETAH 125 ENGINE TECHNICAL SPECIFICATIONS

E - Piston	
No of piston rings	1 (L shaped Dykes
Overall length	58.5 mm
Radius of crown	13 degrees OEM
Crown to pin	29.5 mm+/- 0.25mm
Skirt to pin	29.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



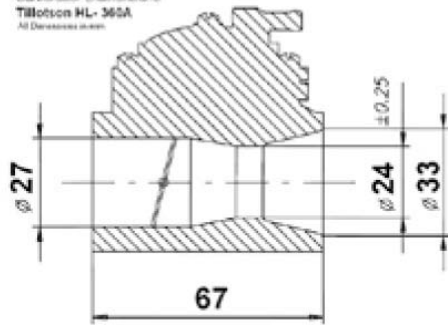
G - Gaskets	
Barrel gasket material	Any
Minimum thickness	0.1 mm
Maximum thickness	2 mm
Cylinder head gasket	No Gasket - Has O-
Minimum thickness	N/A
Maximum thickness	N/A



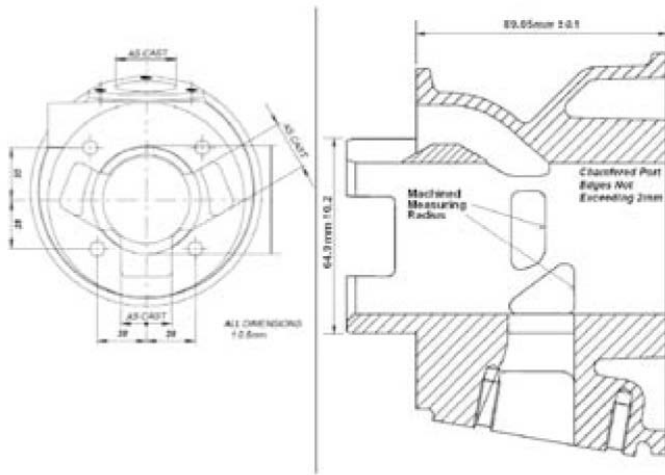
SQ CHEETAH 125 ENGINE TECHNICAL SPECIFICATIONS

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

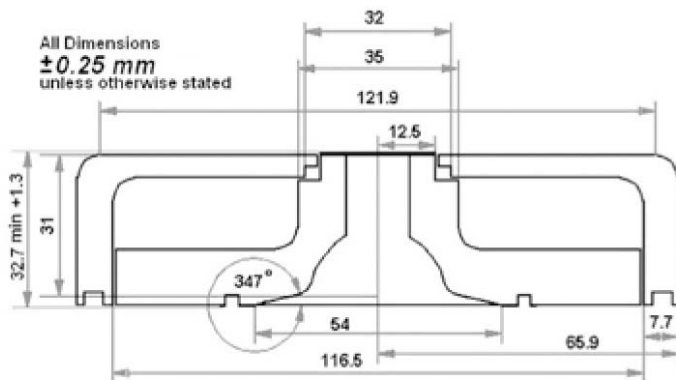
Carburettor Dimensions
Tillotson HL-365A
All Dimensions in mm



Carburetor Location



Drawing of Cylinder Development

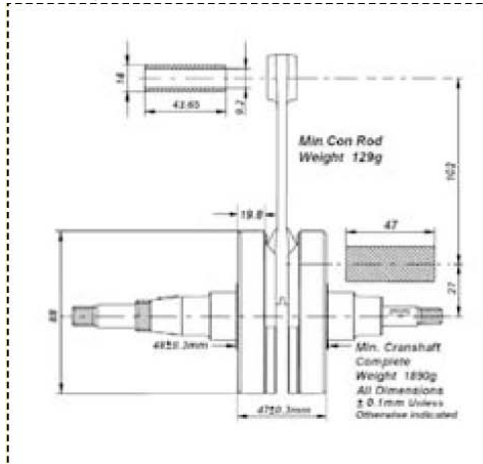


Drawing of the Combustion Chamber and Cylinder Head

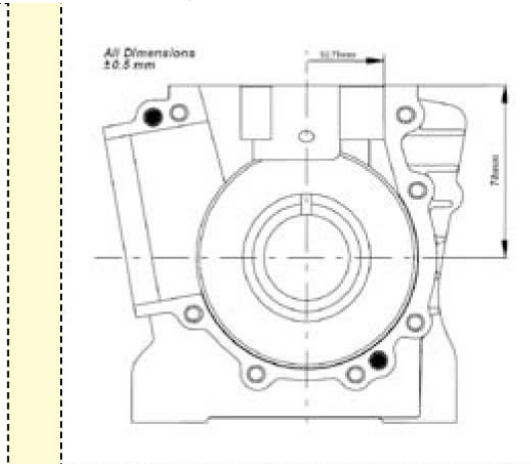


SQ CHEETAH 125 ENGINE TECHNICAL SPECIFICATIONS

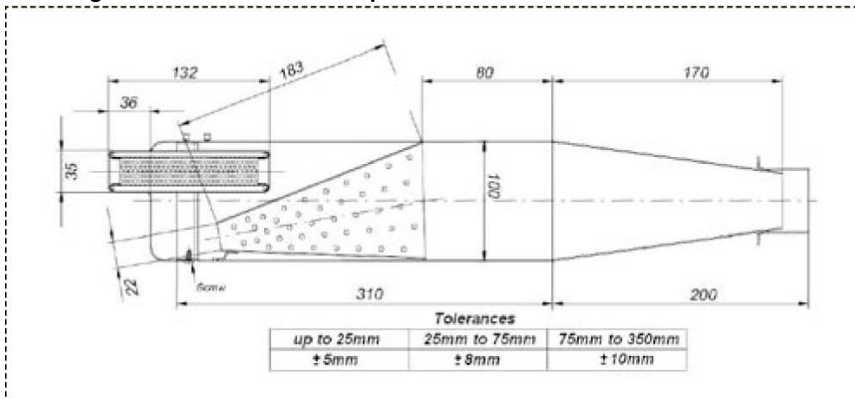
Drawing of the Crankshaft



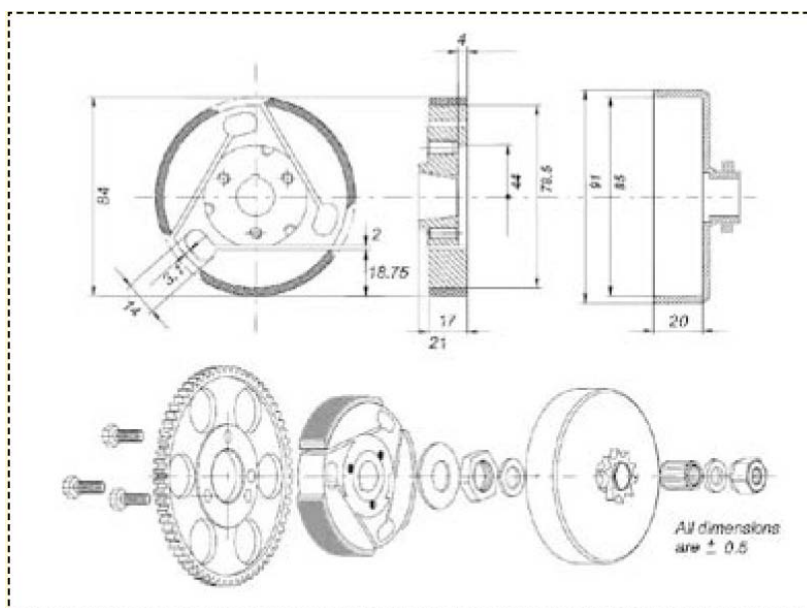
Drawing of the Interior of the Sump



Drawing of Silencer and Components

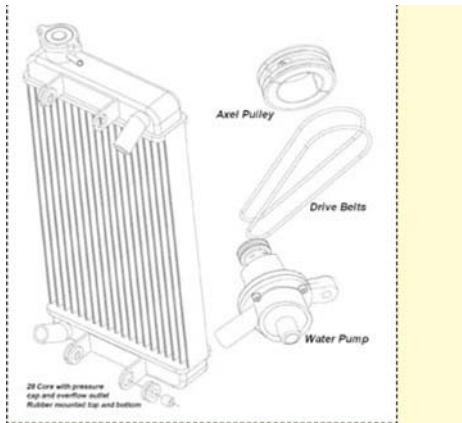


Clutch Description and Sketch of Parts

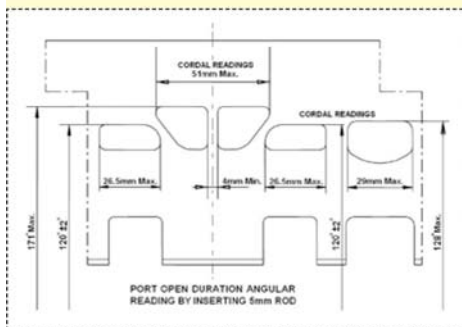




SQ CHEETAH 125 ENGINE TECHNICAL SPECIFICATIONS



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.