AMAL PUMP TYPE CARBURETTOR

Adding a Carburetter "Pump."—nut are then added, and the existing float and float-chamber lid employed.

Those desiring to make this modification must supply the necessary details as to make and type of engine and existing carburetter, when suitable parts will be supplied. In most cases it is necessary to lower the needle one notch and to use a main jet approximately 10 to 15 per cent larger than that in previous use.

The Fitting Tested.

Experience with the pump-type carburetter shows greatly improved acceleration, with no material alteration in fuel consumption.

Tested by *The Motor Cycle* on a high-compression single which was inclined to knock when opened up quickly, it was found that the carburetter caused knocking to decrease and the performance to improve perceptibly.

On a vee-twin with rather a long induction pipe the improvement was even more marked. The acceleration was greatly improved and the engine appeared to be more flexible under all conditions, less need of gear changing being apparent.

The parts of the conversion set, with the "pump" shown in section.

A conversion set was then obtained for a square-four Ariel, and, though this machine is outstanding as regards acceleration even with a normal carburetter, the result of the change-over was astonishing. The machine now goes off the mark like a rocket, and the gain in acceleration is unaccompanied by any corresponding disadvantage.

No Need to Flood.

With the pump-type carburetter there is no need to flood the instrument for starting, since one or two quick openings of the throttle cause the pump to inject neat petrol into the mixing chamber.

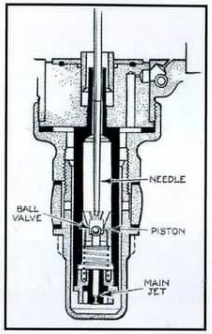
Because of this pumping action, which is entirely automatic, it is undesirable to "blip" the engine on corners, for rapid and continuous use of the throttle may choke the engine with excessive fuel.

The price of the conversion sets varies from 13s. 6d. for the smallest type to 15s. for the largest.

We can all be forgiven for thinking that our old friend the Amal Carburettor is at the very least a simple design but it turns out they weren't always that way. Whilst restoring his Blue Star, Philip Hartshorn found some really interesting info about the device available for his machine. Philip writes...

About 8 years ago, I made a start restoring my 1934, 499cc BSA Blue Star. As I bought the bike in boxes some 20 years previous my initial efforts were aimed at determining what I had and hadn't got. One thing I definitely had not got was an Amal accelerator pump carburettor, indeed I had never heard of such an instrument, nor had a lot of other folk.

A friend, also building a Blue Star, had some BSA and Amal literature which had reference to "pump type carbs", but I wondered if they had ever gone into serious production. My friend had spent a few unsuccessful years searching for a carb with a 'P' stamped on the mounting flange, the 'P' signifying pump type.

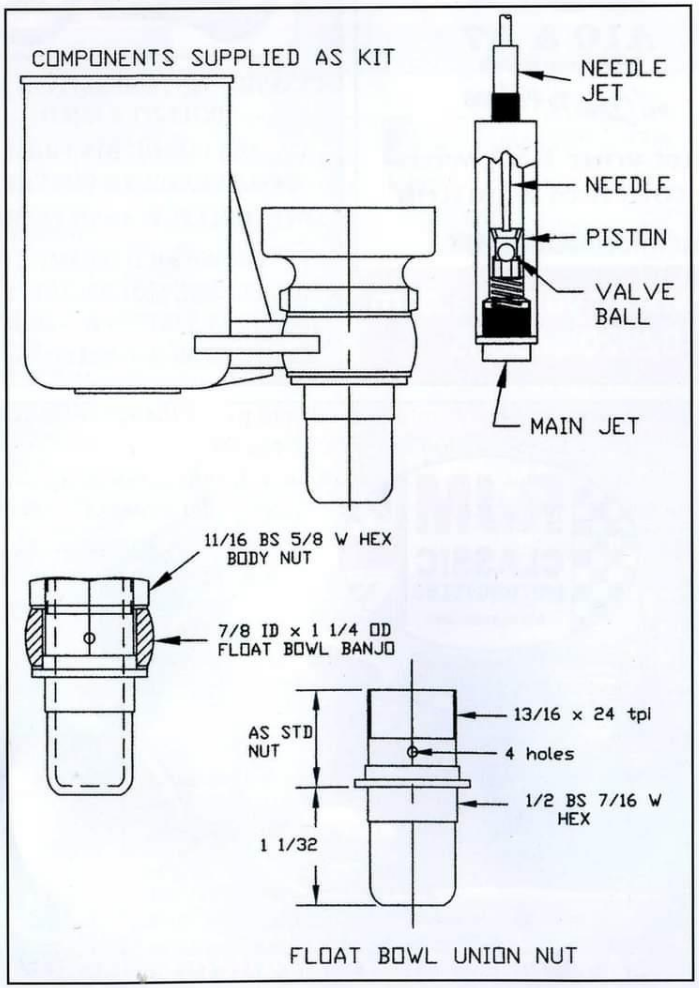


After some enquiries I was told of some articles published in *The Motor Cycle* magazines of 1931, of which I duly obtained copies from the VMCC library and there it was, the Amal Pump Type carb – it did exist after all!

The carburettor evolved for road racing purposes, but could and was fitted to production machines, like the 350 and 500 Blue and Empire Star, the 250s were fitted Amal TT carbs. (I don't know of any other production machine to which it was fitted!). Also, a kit of parts was available for fitment to existing machines, provided there was at least ¾ of an inch clearance below the original carb. The kit of parts (as drawing) comprised, the pump assembly, a special float bowl and float needle, larger float bowl union and body nuts, at a cost of between 13s. 6d and 15s.0d.

It works quite simply. When the throttle is opened, the piston, in contact with the tip of the jet needle, is raised by its spring causing a jet of extra petrol to be displaced through the needle jet momentarily enriching the mixture. When the throttle is closed, the piston is pushed back down its cylinder recompressing its spring; the valve ball is raised from its seat allowing petrol to flow through the piston via the four holes drilled in its crown. The main and needle jet need to be increased in size by 10 to 15%, to compensate for the restriction caused by the piston ball valve.

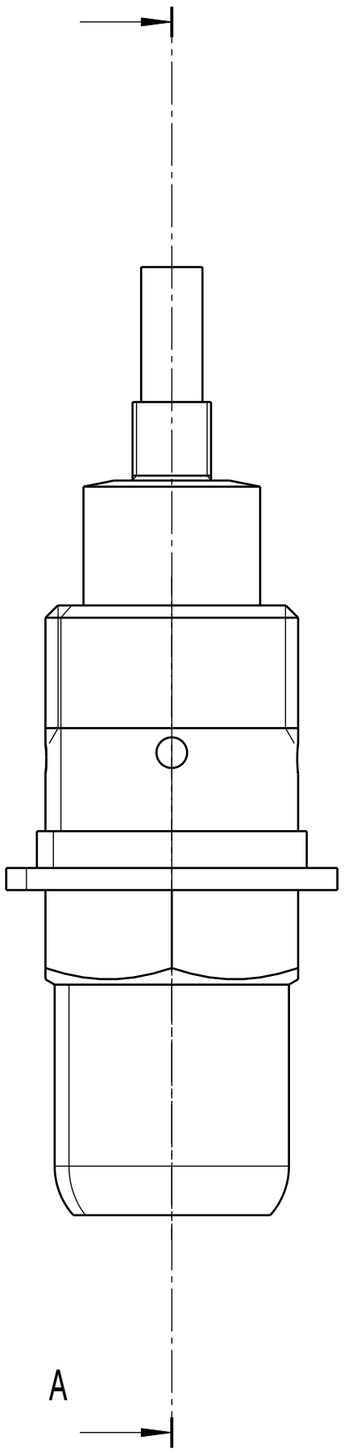
Philip Hartshorn



Our sincere thanks to Mortons Media for the use of the illustrations from 1931 editions of 'The Motor Cycle'. Ed.

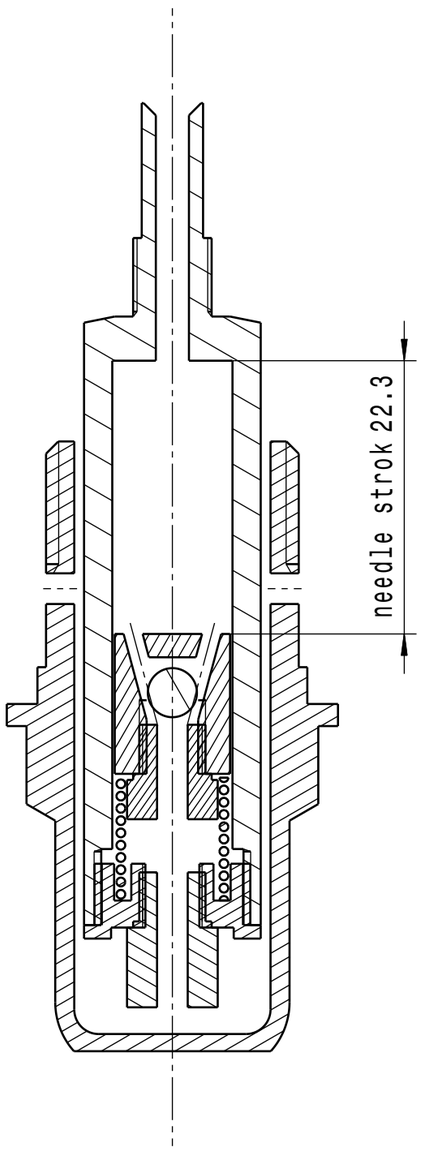

AMAL
BIRMINGHAM
ENGLAND

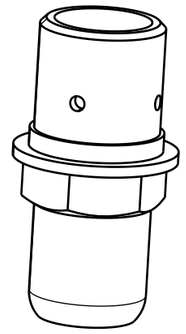
A

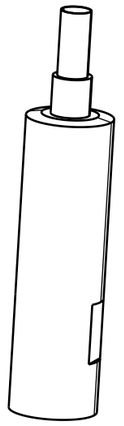


A

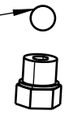
Section cut A-A
Scale: 2:1





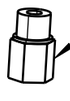


bearing ball 4mm
or smaller

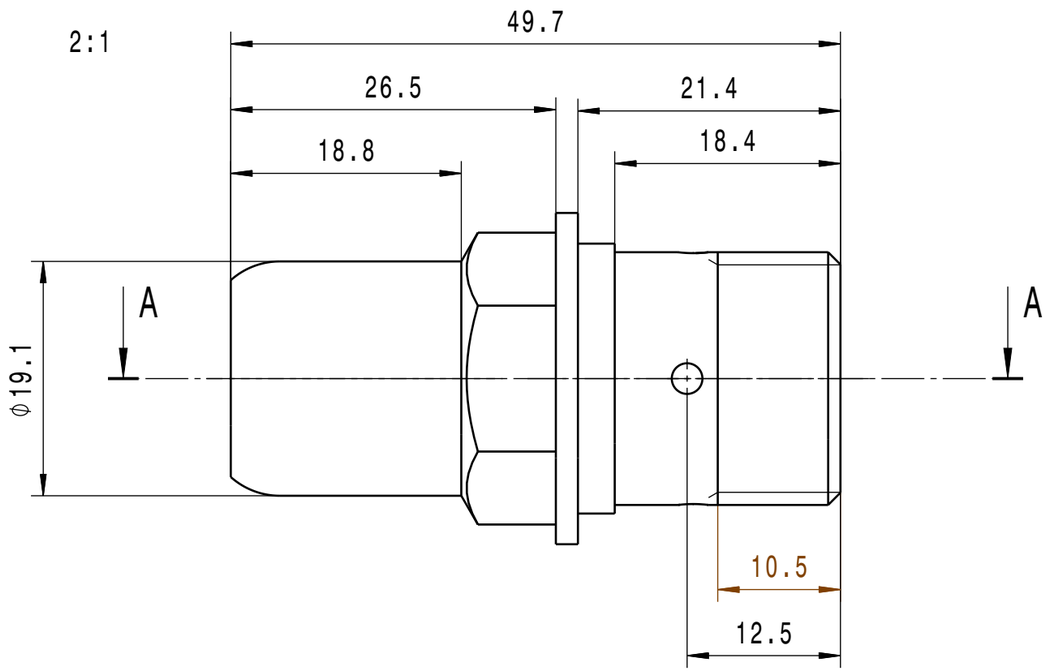


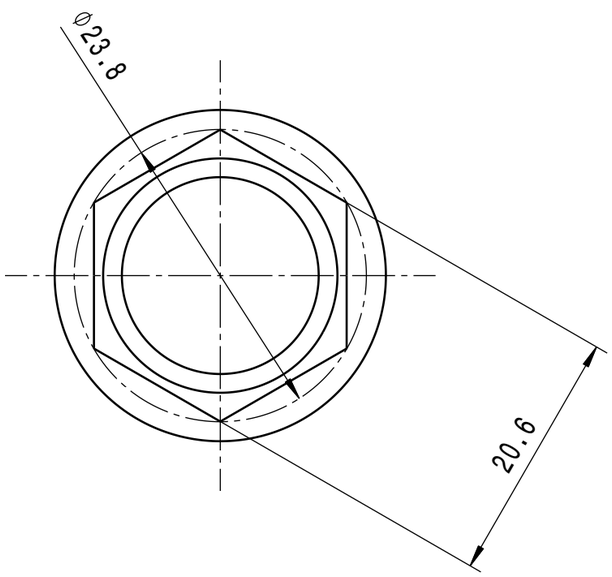
Spring lenght to be
determined

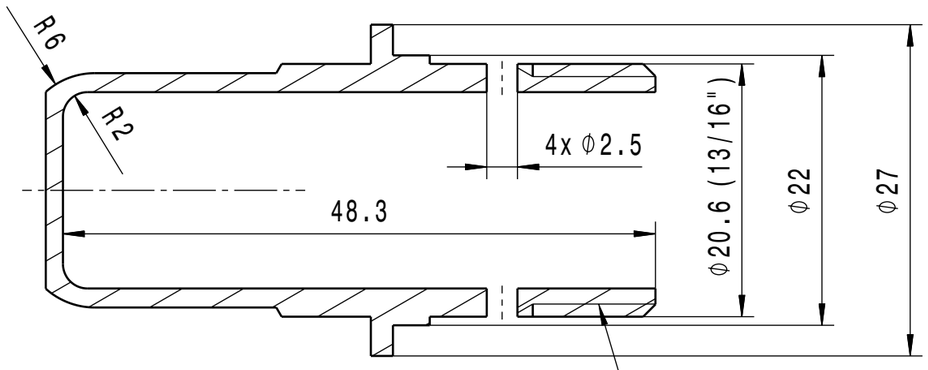
AMAL Main Jet 200



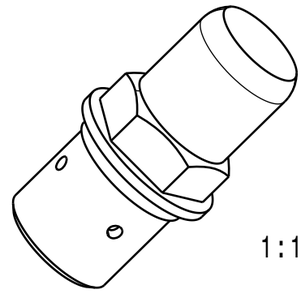
AMAL 29/14P Carburator Pump - BSA W32-7 BLue Star
Pump Chamber
Material: Stainless Steel



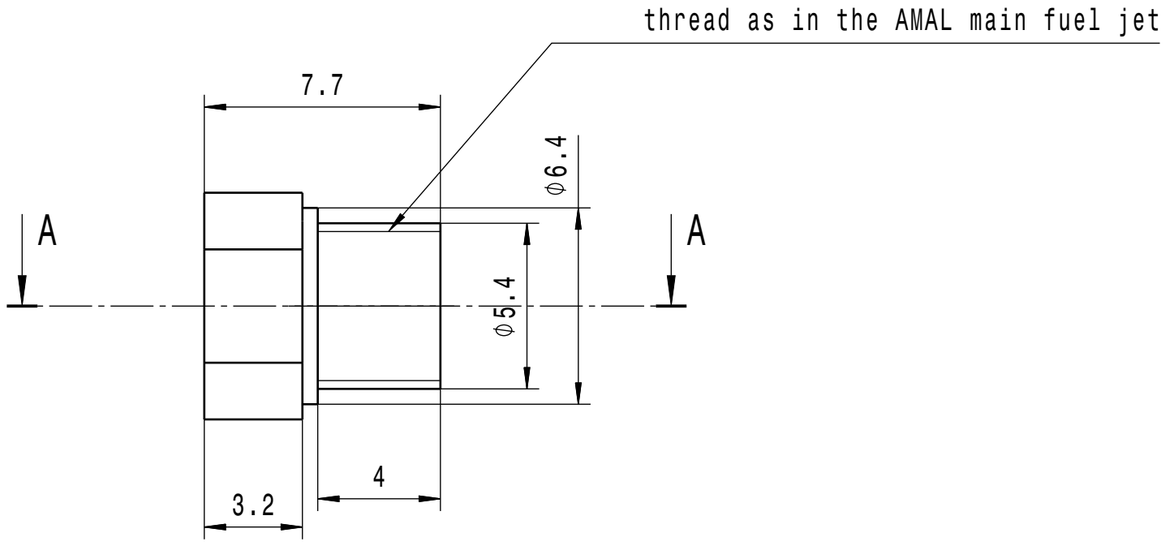




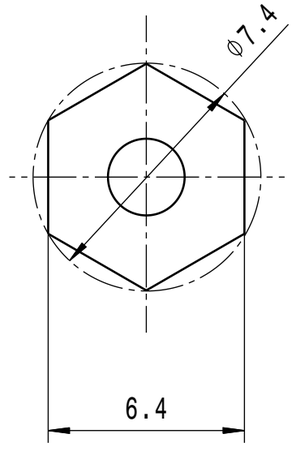
thread as in a standard Amal carburetor body



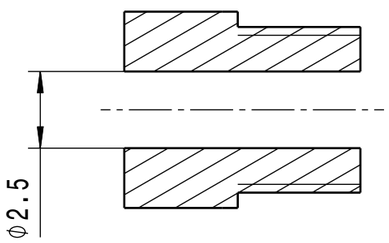
AMAL 29/14P Carburator Pump - BSA W32-7 BLue Star
Piston Jet
Material - Brass



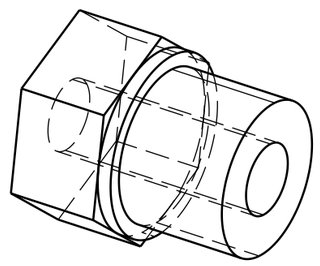
Left view
Scale: 5:1



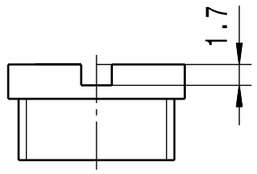
Section cut A-A
Scale: 5:1

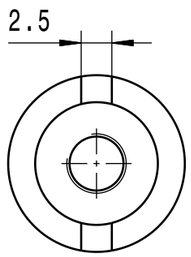


Isometric view
Scale: 5:1

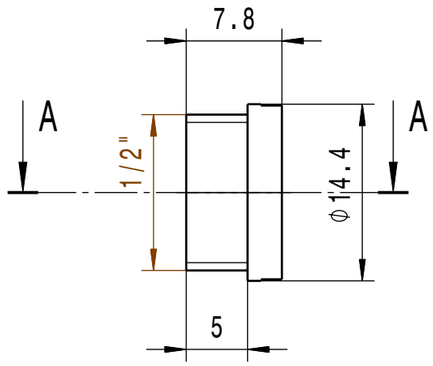


AMAL 29/14P Carburator Pump - BSA W32-7 BLue Star
Pump Body Bottom Cup
Material - Brass

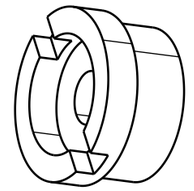


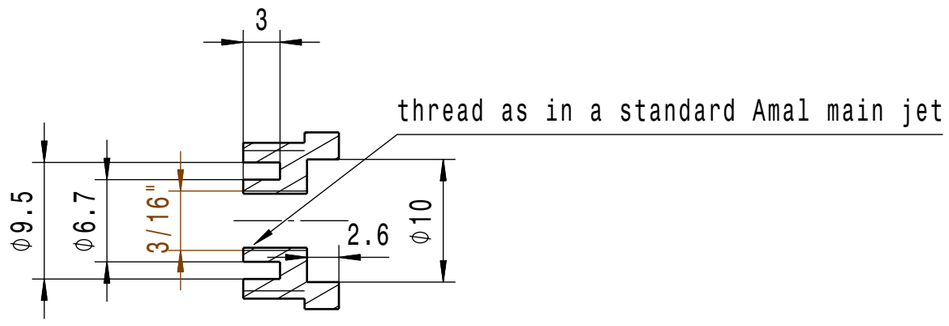


Right view
Scale: 2:1

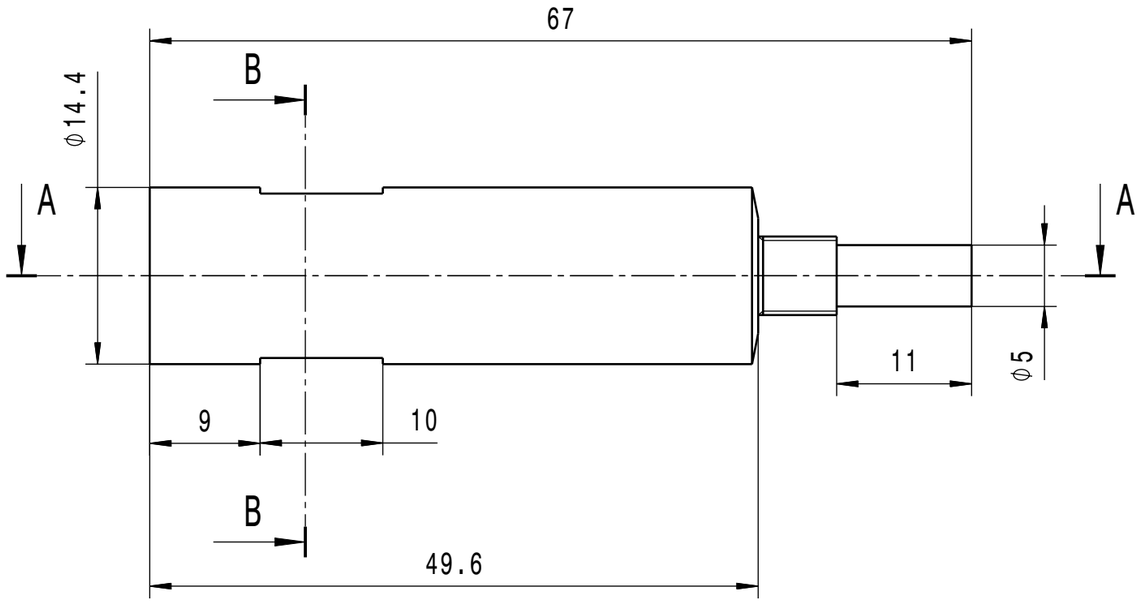


Isometric view
Scale: 2:1

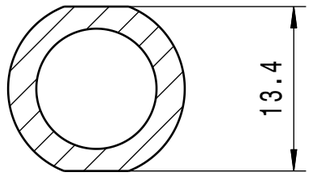




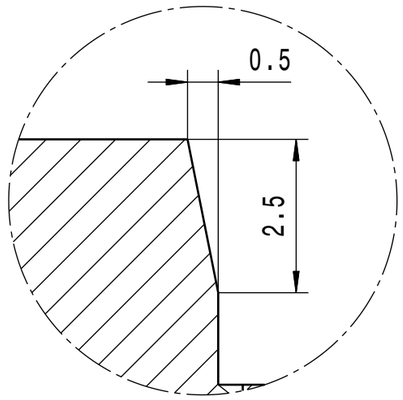
AMAL 29/14P Carburator Pump - BSA W32-7 BLue Star
Needle Jet / Pump Body
Material - Brass



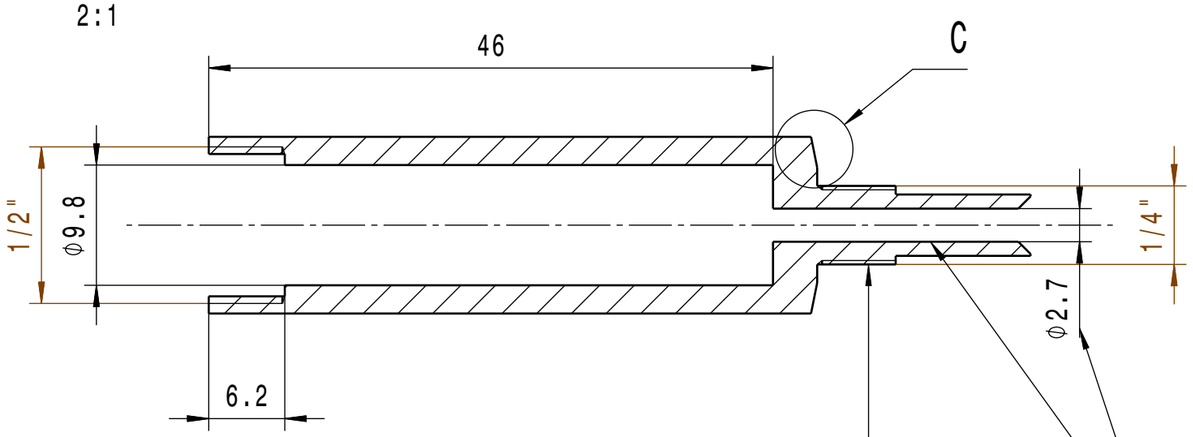
Section B-B
2:1



Detail C
Scale: 10:1

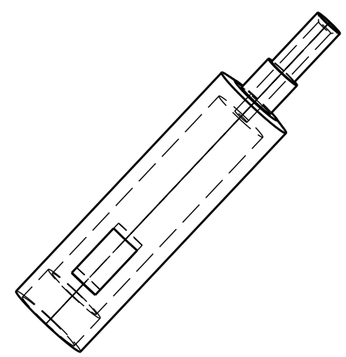


Section A-A
2:1



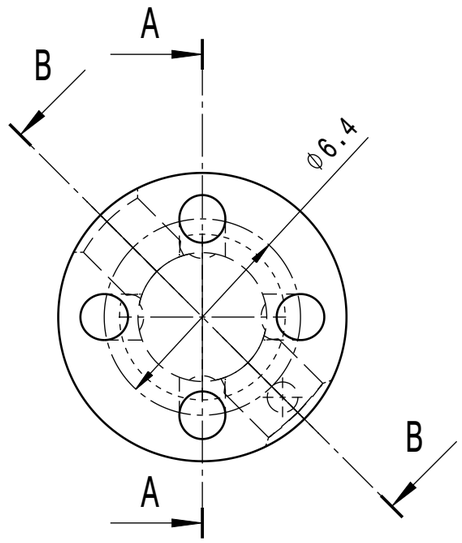
Iinternal diameterin as in
standart Amal Needle Jet...

Thread pitch as in standard Amal
Needle Jet...

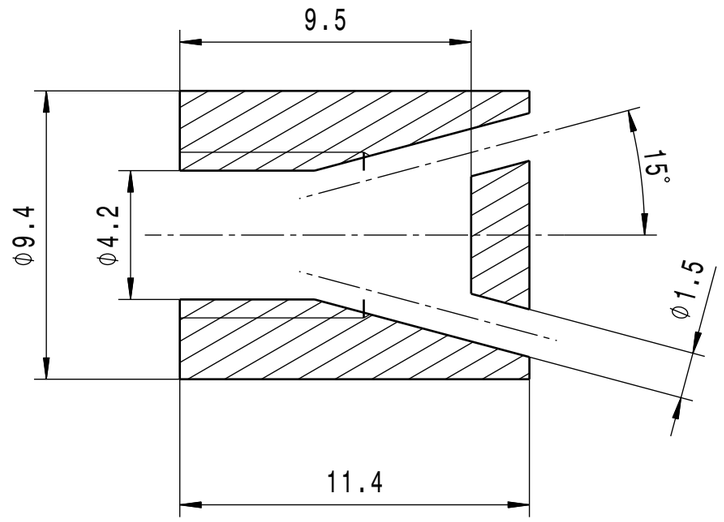


Isometric view
Scale: 1:1

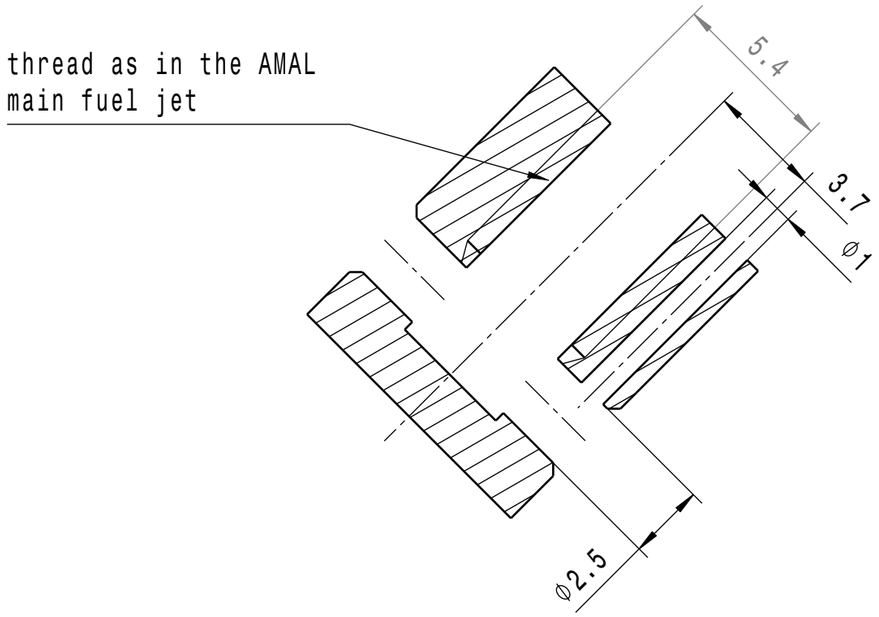
AMAL 29/14P Carburator Pump - BSA W32-7 BLue Star
Piston
Material - Brass



Section cut A-A
Scale: 5:1



Section cut B-B
Scale: 5:1



Isometric view
Scale: 5:1