

VARIABLE HEIGHT REFUELLING STEPS



The Challenge

Refuelling companies are finding increasing pressure to ensure that their fleets are safely refuelled during short turnaround times. It is essential, therefore, for them to have access to refuelling equipment that is high performance and safe.

Fixed height refuelling steps have limited use because of the differing heights required to refuel different aircraft. In order to be useful for a variety of aircraft the steps needed to allow the refueller to position them at different heights whilst being able to accommodate dual fuelling connections quickly and safely.

For the refueller to be able to move the steps from the fuel farm to aircraft point of delivery the steps need to be stable enough to be towed at workable speed but lightweight enough for one person to adjust the position of the steps for the recommended refuelling heights. The steps must then be safe when parked and in operation.

A robust design had to allow for many years of use that would outlive other equipment on the market.

Variable Height Refuelling Steps - Semcco Case Study

Solving the Problem

Semmco's policy was to work with the refuelling operatives to create a design that would perform more than one task, so reducing the number of refuelling steps needed to refuel aircraft. The idea was to create a set of multifunctional steps able to refuel the A380, B787 and current generation aircraft.

As the heights of the refuelling points on each aircraft vary, the new steps were built with a platform height range from 2.5m to 3.75m giving a refuelling height of 4.2 to 5.45m: a further gain in height of 1.5m when compared with other fixed height models.

The design dealt with robustness by constructing a durable steel chassis on which was mounted a high grade aluminum frame with steps and platform providing a weight reduction of 60% over steel. In addition all the aluminum joints are bolted instead of welding to give more strength to the structure.

Double or single-sided fuelling was incorporated into the design with an easy lift for handling the refuelling nozzle (each fuel coupler incorporating a counter balance) to reduce operator manual handling issues.

Safety features included non-slip profiles on the steps and platforms, folding safety gates and rear stability jacks with additional parking brakes on the front axle.

Ease of handling was further addressed by ensuring that when the steps were moved from the refuelling depot to the point of delivery on the aircraft, they were stable enough to be towed at a speed of up to 30km/h. Once at their location they were light enough to be manoeuvred into position by one person with the help of the 270° steering system on the front axle.

The relatively small footprint allows compact storage of only one piece of equipment when not in service.

The Benefits

Cost savings are made when purchasing and maintaining equipment that it is able to perform more than one function while being robust and longer lasting than others on the market.

The refueller is assisted in their tasks by being more time efficient with this high performance equipment.

The Health and Safety issues are addressed with the steps being fully compliant with EN standards.

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