OSPREY SMALL PETROL TANK
SPECIFICATION SHEET & DRAWING

The specifications for The Osprey Petrol Storage Tank have been formulated using the guidance and standards laid down in HSE
publications HSG51 (the storage of flammable liquid in tanks) and HSG176 (the storage of flammable liquid in containers).

HSG176 states that the guidance for the storage of flammable liquids in tanks does not apply to portable containers and drums with a capacity less than 1000 litres, so the main guidelines applicable are from HSG51, but we have aimed to meet guidelines from both publications where possible.

Osprey Petrol Tank capacity is rated at 950 litres which is 3% less than actual capacity.
The tank is self bunded. (Tank within a tank design) The bund capacity is 163%
Tank sizes as per attached plan.
Fully welded mild steel inner tank with 2.5” vent pipe and 4” inlet connection.
Welded mild steel outer tank with bolt on top, hinged lid and bund vent.
Secure padlock system welded into outer steel tank.
Steel vent pipe 2.5m above top of outer tank fitted with flash arrestor outlet.
Hand operated reciprocating pump fitted to top of inner tank.
Hose, nozzle and flow meter fitted to outlet side of hand pump.
Plastic dipstick with 100 litre graduations fitted inside outer tank.
Fork lift skids with bolt down connections welded to base of outer tank.
Earthing strap and bolt plus earth rod fitted to fork lift skids.
Outer tank lid fitted with locking hydraulic stays for open position.
Flammable liquid warning diamonds on each side of outer tank.
Petroleum spirit warning sign fitted to front of outer tank, with No Smoking and No Naked Lights warnings.
Instructions for safe use on inside of tank lid.

The Osprey Petrol Tank is a small capacity storage unit for petroleum spirit.
It is designed to allow customers to have a quantity of petroleum spirit delivered to site, by road tanker and thus avoid the hazards of collecting small amounts of petrol in jerry cans, often by private car, from local petrol stations.
The unit should be sited in the open air at least two metres away from an entrance or window of a building, on a concrete base.
The tank must be secured to the base and an earthing strap fitted.
Consideration for tanker deliveries must be given when choosing a site. The tanker should be able to easily drive to the tank.
The deliveries will be by gravity feed, so the tank should be sited at ground level.
If the tank is in an area of high use, bollards should be sited around the tank for protection.

Marking and labelling: in accordance with HSG51(40,43)
40; Individual containers must be clearly marked to indicate their contents and the degree of flammability. In most cases this will be required by the Chemicals

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Hazard Information and Packaging for Supply) Regulations 1994-5 (as amended) (CHIP) and the Carriage of dangerous Goods (Classification, Packaging and Labelling) and Use of Transportable Pressure Receptacle Regulations 1996-16 (CDG(CPL)). Certain anomalies may exist with regard to the labelling of liquids with flashpoints in the range 56-61 degrees C. For these liquids, flammability labelling is not required under CHIP, but is required under the CDG9CPL) Regulations-16.
43; Storerooms, cupboards and bins need to be marked to indicate the hazards associated with their contents. The yellow hazard triangle symbols which are widely available, indicate the flammability hazards clearly. If it is not reasonably practicable to mark directly on the storage area, then it can be displayed nearby. 'No Smoking' and 'No Naked Lights' notices may be appropriate.

Ventilation: in accordance with HSG51 (55-59) and HSG176 (115,117,118)

55; There are five general principals for ensuring that the risks of fire and explosion, from the storage of flammable liquids in containers, are controlled and minimised. An aid to remembering these five principles is the acronym 'VICES'. There is no order of priority of the principles implied by the use of the acronym.
V Ventilation; Is there plenty of fresh air where containers are stored? Good ventilation means any vapours given off from a spill, leak, or release, will be rapidly dispersed.
I Ignition; Have all ignition sources been removed from the storage area? Ignition sources can vary widely. They include sparks from electrical equipment or welding and cutting tools, hot surfaces, smoking and open flames from heating equipment.
C Containment; are your flammable liquids stored in suitable containers? Will a spillage be contained and prevented from spreading to other parts of the storage area or site? A means of controlling spillage would be the use of an impervious sill or low bund. An alternative is to drain the area to a safe place, such as a remote sump or a separator
E Exchange; Can you exchange a flammable liquid for a less flammable one? This is a basic question you should always ask. Can you eliminate the storage of flammable liquids from your operation altogether?
S Separation; Are flammable liquids stored well away from other processes and general storage areas? Can they be separated by a physical barrier, wall or partition?
56; The remainder of this publication covers detailed control measures, essentially based on the 'VICES' principles.
57; To prevent dangerous concentrations of flammable vapours building up in a store or storage area as the result of a leak, the space needs to be adequately ventilated.
58; Containers should, where reasonably practicable, be stored in the open air at ground level (singly or in stacks). This enables leaks or releases to be quickly seen, and allows for any vapours to be dispersed effectively by natural ventilation. They should not normally be stored on the roof of a building but if, for reasons of space, the use of rooftop storage is considered essential, the enforcing authority and the fire authority need to be consulted.
59; If the best option of storing containers is not reasonably practicable, they may be kept in suitable store rooms, preferably separate buildings specifically designed for the purpose.
115; During normal tank operation, the pressure in the tank may vary. Pressures may increase during filing or if the ambient temperature rises. Conversely pressures may drop during emptying or with temperature falls. The tank venting system should provide:
Normal pressure relief;
Normal vacuum relief;
Emergency pressure relief;
117; If flammable vapours are discharged into the open air, they may ignite if there are ignition sources nearby. The minimum recommended separation distance of vent outlets from sources of ignition, air intakes, buildings, walkways and the site boundary is 3m. Vents should be located on top of the tank. The discharge height above the tank and above the ground should be sufficient to ensure safe dispersion of the vapours. A discharge height of 0.3m above the tank or at least 3m above ground level, whichever is the higher, is usually adequate. The height of the vent outlet should be above the liquid level in the tanker. It may be necessary to increase the recommended separation distances and discharge height of the vent if there is a possibility of poor vapour dispersion and to meet the requirements of the Environmental Protection Act.
118; Lightening or other ignition sources may ignite the vented vapours from atmospheric vents. A flame arrester installed at the vent outlet will prevent the flames spreading into the tank. A flame arrester should normally be installed at the vent outlet of a fixed-roof tank containing a liquid with a flashpoint below 21 degrees C. Flame arresters need regular maintenance to prevent blocking by paint, scale or other material. They should be incorporated into a planned preventive inspection scheme. A flame arrester is not advisable where the liquid stored is liable to polymerise or foul the arrester.

Design and Construction: in accordance with HSG51 (85,87,89,90) and HSG176 (63,64).

85; The main protection against the dangers arising from the storage of flammable liquids in containers is the integrity of the packaging. Individual containers may leak, break or be punctured, causing a small escape of material. You need to have arrangements in place to deal with these situations.
87; All containers should be designed and constructed to standards suitable for the purpose. They should be robust and have well-fitting lids or tops to resist spillage if knocked over. There are specific standards available for containers and packaging to comply with transport legislation. Containers need to be of an appropriate IN Performance Tested Type. Such containers are suitable also for storage conditions.
89; Where necessary containers may need protection against corrosion, for example by painting. In particular, plastic containers can suffer degradation by light, but this can be reduced by suitable shading.
90; The material, from which the containers are made, needs to be compatible with the chemical and physical properties of the liquid to ensure that no interaction occurs which might cause leakage.
63; The materials used in the construction of the tank or, where appropriate, the tank lining, should be compatible with the chemical and physical properties of the liquid, to ensure that no interaction occurs which might cause failure of the tank.
64; Above ground tanks are generally constructed of steel or other material which can withstand for a short period the effects of direct flame impingement or radiant heat from afire in the vicinity.

Contents Measurement: in accordance with HSG176 (108).

108; Every tank and tank compartment should have a suitable means of measuring the quantity of material stored. It should be tested and calibrated at the time of installation to ensure accuracy, and at regular intervals in line with an inspection and maintenance schedule.

Bonding and Earthing: in accordance with HSG176 (134,135).

134; Static electricity is generated when movement separates charge which can then be accumulated on plant and equipment, and on liquid surfaces. If the plant is not earthed or the liquid has a low electrical conductivity, then the charge may be generated faster than it can dissipate. Eventually, there may be an electrical discharge or spark. If this has sufficient energy it could ignite a flammable gas or vapour.
135; To minimise the accumulation of electrostatic charge and prevent incendive sparks, all metal parts of the storage installation should be bonded together and earthed. A maximum resistance to earth of 10 ohms is recommended. It should be possible to disconnect the earthing facilities for periodic test measurement.

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Installation: in accordance with HSG176 (75).

75; When installing an above ground tank, it is important to consider the following:

that the foundations are designed and constructed to support the full tank loading.

that the tank is securely anchored or weighted to avoid floatation from flood water or from spillage of liquid into the bund.

Bunding: in accordance with HSG176 (139-140).

139; The purpose of bunding is to:

Prevent the flammable liquid or vapour from reaching ignition sources.

Prevent the liquid entering the drainage or water systems where it may spread to uncontrolled ignition sources.

Allow the controlled recovery or treatment of the spilled material.

Minimise the surface area of the liquid and so reduce the size of any fire that may occur.

Prevent the spread of burning liquids which could present a hazard to other plant or personnel both on and off site.

Prevent contamination of both land and water courses.

140; The bund should have sufficient capacity to contain the largest predictable spillage. A bund capacity of 110% of the capacity of the largest storage vessel within the bund will normally be sufficient. When estimating the bund capacity the space occupied by other tanks should be taken into account.

Tanks above Ground: in accordance with HSG176 (46-48).

46; Tanks above ground should be sited in a well ventilated position separated from the site boundary, occupied buildings, sources of ignition, and process areas.

47; The separation distances will depend on various factors but primarily on the capacity of the tank.

48; The separation distances given are unlikely to give complete protection in the event of a fire or explosion involving the tank, but should allow sufficient time for people to be evacuated, provided there are good means of escape. They should also allow sufficient time for additional fire fighting equipment and emergency procedures to be mobilised.

Separation Distances: in accordance with HSG176 (50)

50; Separation distances for small tanks. For the purposes of this guidance ‘small’ tanks are considered to be tanks with a diameter of less than 10m.
Minimum recommended separation distance for single ‘small’ tanks, less than or equal to 1 cubic meter (1000 litres), from site boundaries, buildings, process areas and fixed sources of ignition is 1 meter, but at least 2 meters from doors, plain glazed windows, or other openings or means of escape.,also not below any opening (including building eaves and means of escape) from an upper floor, regardless of vertical distance.

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