

MANZI SOLUTIONS
manzi

FOR THE TREATMENT OF
RAINWATER



INTRODUCTION

The obligation to install systems for treating first flush rainwater

Precipitation in urban areas, particularly in high density industrial areas, is prone to high surface drainage, which depending on the type of settlements, create sources of pollution in a more or less systematic way.

The purification of water from precipitation from the surface around production sites and roads must be carried out in installations designed with the characteristics of the water to be purified in mind, given their high variability.

Installations must be functional with regards to the objectives of quality regarding receptacles, and keep indications deriving from Water Protection Plans (WPP) in mind, as well as regional environmental regulations in force.

Possible installation designs (continuous, discontinuous first flush rainwater, with by-pass) must be evaluated based on the the modes of treatment required, regional reference points and quality objectives to be respected in terms of the discharge limits of the various receptacles.

For service areas and petrol stations, for example, of particular note are suspended substances such as hydrocarbons and oils, that when released during refuelling or manoeuvring, end up in drains together with first flush rainwater.

The advantage of Fibreglass

The use of fibreglass means lightness, rigidity and mechanical and chemical strength, as well as hydraulic soundness which is an intrinsic with the material. Fibreglass, indeed, ensures the creation of basins that are perfectly watertight, without the risk of effluent leakage into the surrounding ground or the infiltration of groundwater, whilst guaranteeing durability of the product over time, even in critical situations in terms of corrosion or ageing due to atmospheric agents. Manzi rainwater treatment systems are born from applications in the ecological sector of thirty years' experience in the fibre glass sector and of environmental products. Thanks to a careful planning and sizing, they offer excellent performance in order to entirely respect the quality levels required by regulations in force.

TECHNICAL DEFINITIONS

- **Meteorological Event:** one or more atmospheric precipitation events, even when far apart from one another, of a minimum total height of 5mm, that take place or follow one another at least 96 hours since a similar previous event.
- **Run-off rainwater:** water deriving from meteorological events that are contaminated by substances present when this water comes into contact with surfaces with a certain impermeability level.
- **First flush rainwater:** Waters during the first phase of each meteorological event at a predetermined level (usually 5mm), uniformly distributed over the entire drainage surface served by the collection network for meteorological water.

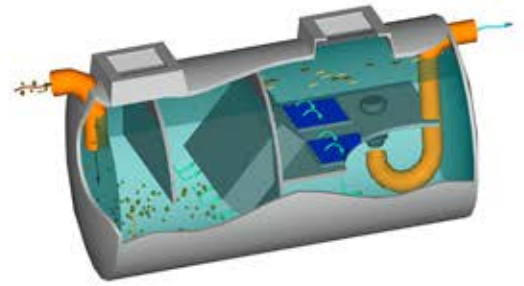
MANZI SOLUTIONS

- 1) **CONTINUOUS SYSTEM: mod. GN**
class separator I (UNI EN 858-1: 2005)
- 2) **CONTINUOUS SYSTEM WITH BY-PASS: mod. PSF + GN**
class separator I (UNI EN 858-1: 2005)
- 3) **DISCONTINUOUS SINGLE BLOCK SYSTEM: mod. GNL**
accumulation and treatment of first flush rainwater
- 4) **DISCONTINUOUS SYSTEM WITH SEPARATE TANKS: mod. VPP + GN**
accumulation (first flush rainwater kit) and first flush rainwater treatment

1) MUD, MINERAL OIL AND PETROL SEPARATOR MOD. GN

The mud, mineral oil and petrol model GN is a static system that provides for the separation of hydrocarbons from the water, taking advantage of their different specific gravities. A reed valve and coalescent filter are installed, and as an optional extra a control unit with a visual and audible alarm can be fitted to detect the maximum level of oils collected. Furthermore, a floating closure system is fitted for any accidental spillages. The GN has two inspection windows up to GN50 and three for higher models of 600x600 mm dimensions. All connectors are made from PVC UNI 1401-1.

The GN is a separator which conforms of UNI EN 858 class I regulations.

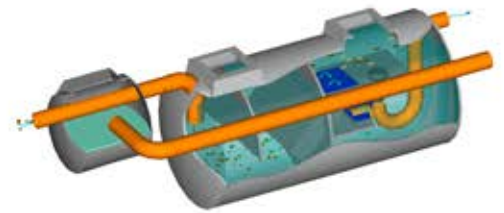


Available in models GN 3 / 5 / 6 / 10 / 15 / 20 / 30 / 40 / 50 / 65 / 80 / 95 / 110 / 120 / 150 / 200 (l/sec).

2) MUD, MINERAL OIL AND PETROL SEPARATOR MOD. GN WITH BY-PASS MOD. PSF

The mud, mineral oil and petrol model GN is a static system that provides for the separation of hydrocarbons from the water, taking advantage of their different specific gravities. The principle of the system is to separate, through the spillway mod. PSF, the flow rate to be sent to GN and download with by-pass the remaining fluid. It is provided with a lamellar pack filter and a coalescence filter.

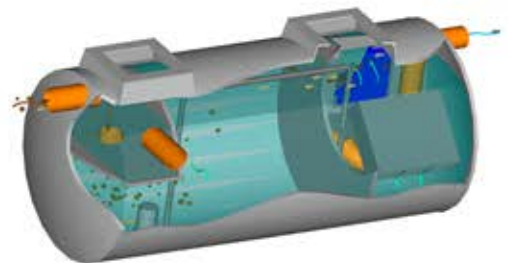
Optionally, a control unit with optical and acoustic alarm shall report any emergency situations during automatic closing system activation by excess oil accumulation. All connectors are made from PVC UNI 1401-1.



Available in models PSF+GN 3/5/6/10/15/20/30/40/50/65/80/95/110/120/150/200 (l/sec).

3) FIRST FLUSH RAINWATER TREATMENT SINGLE BLOCK MOD. GNL

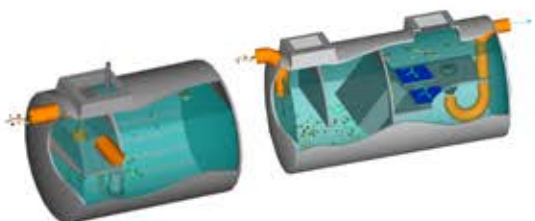
The mud, mineral oil and petrol model GNL is a single block system suitable for the collection and treatment of first flush rainwater conforming with Legislative Decree 152/06 and subsequent amendments and additions and in particular, thanks to versions Q, QA, QB and QC, clears the requirements of the various regional regulations. GNL is a static system that separates hydrocarbons from water, taking advantage of the differences in specific gravity. The system is fitted with an integrated water by-pass relief valve, shutters in floating or solenoid versions as well as a rain sensor where models provide for it. It is composed of a collection tank of the volume of the first flush rainwater with a submerged pump, on a timer, for the release of stored water which it decants into the de-oiling sector, by-passing further water. The de-oiling sector is fitted with a reed valve coalescence filter. The system is completed by an IP65 control board with visual and acoustic alarms.



Available on GNL models : 3/5/6/10/15/20/30/40/50/65/80/95/110/120
Treatable surface area up to 8.000 sq. m (5mm/sq. m) - max. collection volume 40cu. m

4) FIRST FLUSH RAINWATER TREATMENT SYSTEM WITH SEPARATE TANKS MOD. VPP+GN

The first flush rainwater collection tank mod. VPP is of a suitable volume to store first flush rainwater before sending it to any treatment system (for example, Mod. GN). Systems of mod. VPP are also called "first flush rainwater kits", for the reason that they are a solution to the problem of separating first flush rainwater, where a continuous de-oiling treatment is already present. It is a system fitted with an integrated water by-pass relief valve, floating or solenoid shutters as well as a rain sensor where models provide for it. The sectors making up the VPP are: collection sector and sand sedimentation sector, subsequent water by-pass. There is a forwarding pump on the inside, on a timer, for stored water. The system has an electronic control panel for commands and controls. Versions Q, QA, QB and QC clear the requirements of various regional laws.



Available in models:

VPP 2000/3000/4000/5000/6000/8000/ 9000/10000/12500/15000/20000/25000/30000/35000/40000/50000 litres.
N.B.: for higher collection volumes, tanks can be connected together in series.

FEATURES

All of our systems are made from FRP (Fibre Glass Reinforced Polymer) that confers lightness, resistance to corrosive and chemical elements in the ground as well as high mechanical resistance, allowing them to be buried without the risk of deformation under the weight of the ground or external overloading. In particular, assuming that the indications relating to the installation of objects supplied with each system are followed, we declare that all of our systems for rainwater treatment can be driven over by heavy vehicles. This is based on considerations drawn from experimental tests, structural analysis and long-term usage testing relative to the numerous installations already undertaken over the past few years where such traffic exists.

GUARANTEES

Systems of mod. GN/GNL, guarantee water output with acceptability limits of Tab. 4 appendix 5 of the Legislative Decree 152/2006 for ground discharge, if installed correctly and carried out in respect of project date and constantly maintained as efficient.

TYPICAL APPLICATIONS

- Service Station
- Industrial courtyards
- Car Parks
- Road / Motorway sections
- Tunnels
- Vehicle crushing sites
- Body shops
- Garages
- Waste disposal sites



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