



1. GRAVITY OIL SEPARATORS
2. OIL SEPARATORS WITH COALESCING FILTER

# OIL SEPARATORS



## OIL SEPARATORS

Oils and greases are present in most industrial effluents. Their removal is necessary prior to discharge due to the negative aesthetic effects that they produce when discharged to a body of surface water and due to the damage caused to flora and fauna. Furthermore, their removal is also necessary as a pre-treatment prior to any other treatment phase, in that they create problems for the development of the biological treatment processes. In the case of service stations, vehicle washes and parking areas, the oils and greases are essentially mineral type and non-biodegradable, including in the long-term. Consequently, the discharge of these substances into the sewerage system has an even greater negative effect, not only due to the risk causing blockages in the sewerage system but also because they cannot be degraded at all during the subsequent treatment process. In order to remove these types of pollutants, use is made of oil separators which, depending on the treatment system adopted, are divided into two classes: Gravity separation and Coalescing filter separation.

## GRAVITY OIL SEPARATORS

### TECHNICAL CHARACTERISTICS

Static oil separator tanks are stilling tanks sized for a retention time of at least 15 minutes at maximum discharge flow. These oil separators are defined as class II according to UNI-EN 858-1 and consist of a sedimentation zone in which the lighter liquid (volumetric mass not exceeding 0,95 g/cm<sup>3</sup>) is separated from the inert materials: sludge, sand/grit and silt. Each model is designed with a light liquid storage capacity. The oil separators are sized according to a defined nominal flow, i.e. the maximum treatable flow according to the project specifications. This value is defined to allow a sufficient retention time of the treated effluent and on the basis of performance trials carried out on water and diesel oil mixes. The sizing of light liquid separators must take into account the nature and flow of the substances to treat, as well as any stormwater flows that could reach the plant, the volumetric mass of the light liquid and the presence of substances that could obstruct the separation, such as, for example, detergents. The design flow is calculated for light liquids of density less than 0,85 g/cm<sup>3</sup> (diesel, petrol), in the absence of detergents and for surface runoff only.

### USE AND MAINTENANCE

An excessive accumulation of floating material causes a reduction in the volume available for separation. This risk worsens in the presence of considerable quantities of sedimentable substances that settle at the bottom of the plant. To prevent the escape of solids and mineral oils that could compromise the quality of the discharged effluent, it is advisable to carry out frequent inspections and removal of the accumulated pollutants every 6-8 months. These operations should be more frequent if the plant receives effluent from vehicle workshops, oil storage areas or vehicle washes. The deposits must be removed by specialised personnel and subjected to the appropriate treatment.

## OIL SEPARATORS WITH COALESCING FILTER

### TECHNICAL CHARACTERISTICS

Oil separators with coalescing filters allow improved performance to be obtained in removing light substances. The system makes use of a polyurethane sponge support on which the oil and hydrocarbon particles collect until their dimensions are such that enable them to settle away from the effluent by gravity. This treatment is recommended in the presence of particularly severe limitations on the discharged concentrations of mineral oils and hydrocarbons. It is advisable to install a grit separator upstream of the oil separator in order to prevent solid particles from clogging the filter meshes.

### USE AND MAINTENANCE

As far as maintenance of the coalescing filter oil separators is concerned, in addition to the normal emptying, it is also advisable to remove the sponge support and wash it thoroughly upstream of the plant.

## SPECIFICATION ITEMS

### GRAVITY OIL SEPARATORS

Separation treatment for surface runoff from impermeable areas with minor presence of mineral oils, hydrocarbons and heavy sediments coming from vehicles parks, workshops and garages, in polyethylene (PE) one-piece structure, manufactured in **ISO 9001/2008 company**, in accordance with Legislative Decree n°152/2006 for the discharge in public sewer, sized in accordance with UNI-EN 858-1 norm, for underground installation, fitted with: sedimentation chamber, inlet pipe with n°2 90° elbows in PVC with watertight gasket in NBR rubber for the dampening and distribution of the flow, outlet pipe with deflector T in PVC with watertight gasket in NBR rubber, biogas vent, threaded covers in polypropylene (PP) for inspection, emptying and cleaning purposes; optional threaded extensions; gravity oil separator mod. ...., useful volume.....lt, dimensions.....x.....x.....cm

### OIL SEPARATORS WITH COALESCING FILTER

Separation treatment for surface runoff from impermeable areas with presence of mineral oils, hydrocarbons and heavy sediments coming from vehicles parks, workshops and garages, in polyethylene (PE) one-piece structure, manufactured in **ISO 9001/2008 company**, in accordance with Legislative Decree n°152/2006 for the discharge to surface watercourse, sized in accordance with UNI-EN 858-1 norm, for underground installation, fitted with: inlet pipe with 90° elbows in PVC with watertight gasket in NBR rubber for the dampening and distribution of the flow, outlet pipe in PVC with a coalescing filter made of polyurethane sponge, put in an inox steel pull-out basket, for the separation of hydrocarbons drops and suspended mineral oils, with watertight gasket in NBR rubber, fitted also with biogas vent, threaded covers in polypropylene (PP) for inspection, emptying and cleaning purposes; optional threaded extensions; installation downstream a grit separator; oil separator with coalescing filter mod....., for a flow of..... lt/s, dimensions.....x.....x.....cm

**N.B.:** Underground installation instructions on page 107

# 1. Gravity oil separators for covered hardstandings



**Sizing** Designed for covered hardstandings with minor presence of mineral oils and hydrocarbons with low water flows and discharge to public sewer.

**Use** Treatment of washwater from workshop floors, test centres, car showrooms, garages.

## Corrugated oil separator



Item	Ø mm	H mm	IH mm	OH mm	Ø I/O mm	Cover	Extensions	Useful vol. lt.	Sand/grit vol. lt.	Oil vol. lt.	Q <sub>max</sub> l/s	Drainage area m <sup>2</sup>	Car spaces (*)
NDO 1000	1150	1220	880	860	110	CC455-CC255	PP45-PP30	850	62	22	0,83	375	30
NDO 1500	1150	1720	1360	1340	110	CC455-CC255	PP45-PP30	1268	100	34	1,38	625	50
NDO 2600	1710	1350	1000	980	125	CC455-CC355	PP45-PP35	2061	143	50	1,66	750	60
NDO 3200	1710	1625	1240	1220	125	CC455-CC355	PP45-PP35	2525	180	63	1,94	875	70
NDO 3800	1710	1855	1525	1505	125	CC455-CC355	PP45-PP35	3175	220	80	2,22	1000	80
NDO 4600	1710	2125	1745	1725	125	CC455-CC355	PP45-PP35	3835	285	100	2,77	1250	100
NDO 7000	2250	2367	1885	1865	160	CC600 CC455	PP65 PP45	6934	657	225	5,85	2500	200
NDO 9000	2250	2625	2105	2085	160	CC600-CC455	PP65-PP45	7823	753	258	6,71	3000	240

(\*) Dimensions considered for a 5 x 2,5 m car space

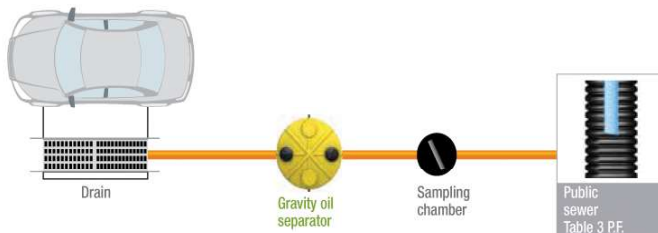
## Smooth oil separator



Item	Ø mm	H mm	IH mm	OH mm	Ø I/O mm	Cover	Extensions	Useful vol. lt.	Sand/grit vol. lt.	Oil vol. lt.	Q <sub>max</sub> l/s	Drainage area m <sup>2</sup>	Car spaces (*)
DO 500	790	790	620	600	110	CC255-CC140	PP30	305	21	7	0,27	125	10
DO 800	1480 x630	1090	870	850	110	CC255-CC255	PP30-PP30	732	51	18	0,55	250	20
DO 1000	1160	1140	910	890	110	CC255-CC255	PP30-PP30	917	67	23	0,83	375	30
DO 1500	1160	1610	1390	1370	110	CC255-CC255	PP30-PP30	1407	101	35	1,38	625	50
DO 2000	1160	2075	1825	1805	125	CC255-CC255	PP30-PP30	1903	137	47	1,66	750	60
DO 3000	1450	1940	1665	1645	125	CC255-CC255	PP30-PP30	2642	192	66	2,22	1000	80

(\*) Dimensions considered for a 5 x 2,5 m car space

## INSTALLATION LAYOUT FOR COVERED HARDSTANDINGS

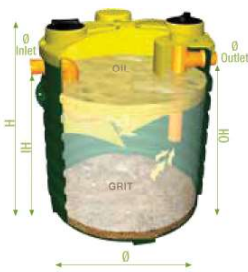




# 1. Gravity oil separators for open-air hardstanding

**Sizing** Designed for treating surface runoff from uncovered hardstandings with minor presence of mineral oils and hydrocarbons and discharge to public sewer. The drainage area is calculated considering a rainfall of 20 mm/h and a unit runoff rate.

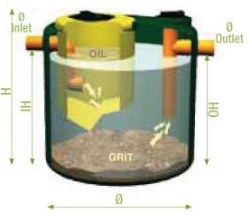
**Use** Treatment of washwater from vehicle parks, storage areas, short stretches of road.



## Corrugated oil separator

Item	Ø mm	H mm	IH mm	OH mm	Ø I/O mm	Cover	Extensions	Useful vol. lt.	Sand/grit vol. lt.	Oil vol. lt.	Qmax l/s	Drainage area m <sup>2</sup>	Car spaces (*)
NDO 1000	1150	1220	880	860	110	CC455-CC255	PP45-PP30	850	62	22	0,83	150	12
NDO 1500	1150	1720	1360	1340	110	CC455-CC255	PP45-PP30	1268	100	34	1,38	250	20
NDO 2600	1710	1350	1000	980	125	CC455-CC355	PP45-PP35	2061	143	50	1,66	300	24
NDO 3200	1710	1625	1240	1220	125	CC455-CC355	PP45-PP35	2525	180	63	1,94	350	28
NDO 3800	1710	1855	1525	1505	125	CC455-CC355	PP45-PP35	3175	220	80	2,22	400	32
NDO 4600	1710	2125	1745	1725	125	CC455-CC355	PP45-PP35	3835	285	100	2,77	500	40
NDO 7000	2250	2367	1885	1865	160	CC600-CC455	PP65-PP45	6934	657	225	5,85	1000	84
NDO 9000	2250	2625	2105	2085	160	CC600-CC455	PP65-PP45	7823	753	258	6,71	1200	97

(\*) Dimensions considered for a 5 x 2,5 m car space

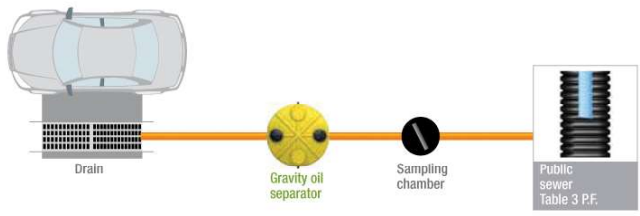


## Smooth oil separator

Item	Ø mm	H mm	IH mm	OH mm	Ø I/O mm	Cover	Extensions	Useful vol. lt.	Sand/grit vol. lt.	Oil vol. lt.	Qmax l/s	Drainage area m <sup>2</sup>	Car spaces (*)
DO 500	790	790	620	600	110	CC255-CC140	PP30	305	21	7	0,27	50	4
DO 800	1480 x630	1090	870	850	110	CC255-CC255	PP30-PP30	732	51	18	0,55	100	8
DO 1000	1160	1140	910	890	110	CC255-CC255	PP30-PP30	917	67	23	0,83	150	12
DO 1500	1160	1610	1390	1370	110	CC255-CC255	PP30-PP30	1407	101	35	1,38	250	20
DO 2000	1160	2075	1825	1805	125	CC255-CC255	PP30-PP30	1903	137	47	1,66	300	24
DO 3000	1450	1940	1665	1645	125	CC255-CC255	PP30-PP30	2642	192	66	2,22	400	32

(\*) Dimensions considered for a 5 x 2,5 m car space

### INSTALLATION LAYOUT FOR OPEN-AIR HARDSTANDINGS

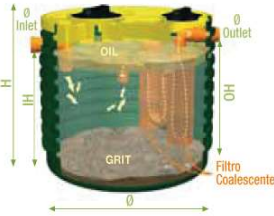


## 2. Oil separators with coalescing filter



### Oil separators For covered hardstandings

**Use** Treatment of water from covered drainage areas with minor presence of mineral oils and hydrocarbons (workshop floors, test centres, vehicle showrooms, garages, covered car parks) with discharge to surface watercourses and where high performance in the removal of light substances is required.

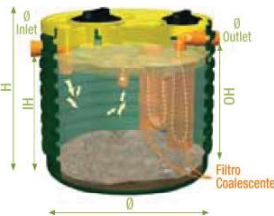


Item	Ø mm	H mm	IH mm	OH mm	Ø/O mm	Cover	Extensions	Useful vol. lt.	Filter type and n°	Qmax l/s	Covered drainage area m <sup>2</sup>	Car spaces (*)
NDOFC 1000 1,5 l/s	1150	1220	880	860	125	CC455-CC255	PP45-PP30	850	FC01 n°1	1,5	675	54
NDOFC 1500 2 l/s	1150	1720	1360	1340	125	CC455-CC255	PP45-PP30	1268	FC02 n°1	2	900	72
NDOFC 1000 3 l/s	1150	1220	880	860	125	CC455-CC255	PP45-PP30	850	FC01 n°2	3	1350	108
NDOFC 1500 4 l/s	1150	1720	1360	1340	125	CC455-CC255	PP45-PP30	1268	FC02 n°2	4	1800	144

(\*) Dimensions considered for a 5 x 2,5 m car space

### Oil separators For open-air hardstandings

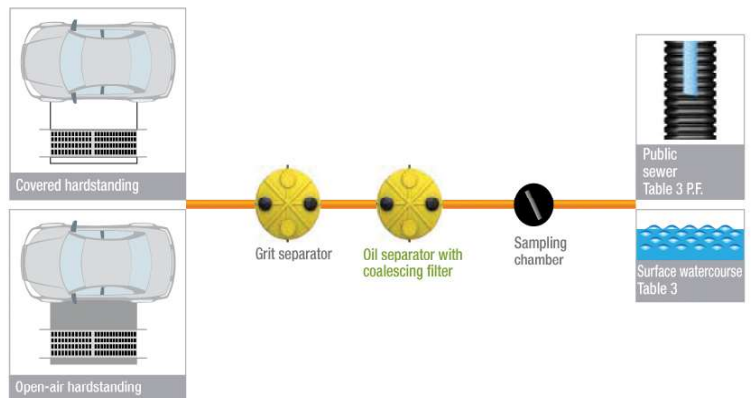
**Use** Treatment of water from uncovered drainage areas with minor presence of mineral oils and hydrocarbons (open-air car parks, petrol stations, good storage and handling areas, manual and automatic car washes) with discharge to surface watercourses and where high performance in the removal of light substances is required.



Item	Ø mm	H mm	IH mm	OH mm	Ø/O mm	Cover	Extensions	Useful vol. lt.	Filter type and n°	Qmax l/s	Covered drainage area m <sup>2</sup>	Car spaces (*)
NDOFC 1000 1,5 l/s	1150	1220	880	860	125	CC455-CC255	PP45-PP30	850	FC01 n°1	1,5	270	22
NDOFC 1500 2 l/s	1150	1720	1360	1340	125	CC455-CC255	PP45-PP30	1268	FC02 n°1	2	360	30
NDOFC 1000 3 l/s	1150	1220	880	860	125	CC455-CC255	PP45-PP30	850	FC01 n°2	3	540	43
NDOFC 1500 4 l/s	1150	1720	1360	1340	125	CC455-CC255	PP45-PP30	1268	FC02 n°2	4	720	58

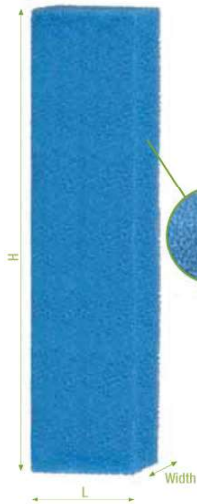
(\*) Dimensions considered for a 5 x 2,5 m car space

### INSTALLATION LAYOUT





# Accessories



## Watercell coalescing filter

Company coalescing filters are manufactured with a reticulated polyurethane foam based on an open-cell structure polyether polyol. The material is obtained using a thermal reticulation process, in which all the membranes are melted into the cellular lattice, it is atoxic and an ideal support for the mechanical filtration of water. The main characteristic of the sponge is the number of pores per linear inch: PPI.

Item	H mm	L mm	Width mm
FCO 1	700	170	20
FCO 2	1100	170	20

Item	Density kg / m <sup>3</sup>	Compressive strength kpa	Maximum extension %	Tensile strength kpa	Cell count PPI
Watercell 20	19 - 22	2,8 - 4,8	≥ 90	≥ 70	15 - 25



UNDERGROUND INSTALLATION
ACCESSORIES
CHAMBERS
LIFT STATIONS
STORMWATER RUNOFF TREATMENTS
OIL SEPARATORS
DEEP SECONDARY TREATMENTS
SOIL ABSORPTION SYSTEM
CONSTRUCTED WETLANDS
PERCOLATING FILTERS
ACTIVATED SLUDGE PLANTS
SEPTIC TANKS
IMHOFF BIOLOGICAL TANKS
GREASE AND GRT SEPARATORS

# STORMWATER RUNOFF TREATMENTS

- 1. IPP – TREATMENT OF STORED STORMWATER RUNOFF (FROM 500 TO 12.000 M<sup>3</sup>)
- 2. IPC - CONTINUOUS TREATMENT OF STORMWATER RUNOFF (FROM 270 TO 7.200 M<sup>3</sup>)





## TECHNICAL CHARACTERISTICS

The subject of the treatment of surface runoff from impermeable surfaces is governed by Law Decree 152/06, according to which:

"1. In order to prevent hydraulic and environmental risks, the regional authorities, in agreement with the Environment Ministry, regulate and implement:

- a) The various forms of quality monitoring of stormwater runoff from separate sewerage systems;
- b) Cases in which the discharge of stormwater runoff through separate pipes may be subject to specific requirements, including the relevant authorisations.

2. The regional authorities also regulate cases in which stormwater and washwater runoff from open-air zones must be conveyed to and suitably treated in treatment plants under particular circumstances in which, in relation to the activities being carried out, there may be a risk of runoff of hazardous substances or substances from open-air impermeable surfaces that may be detrimental to the quality objectives laid down for bodies of water".

Often, when sizing this particular type of plant, the technical requirements defined by Lombardy Regional Law n. 62 of 27th May 1985 are complied with, according to which: "stormwater runoff is considered as being a meteorological event corresponding to a rainfall of 5 mm uniformly distributed over the entire drainage area served by the sewerage system. In the calculation of the flow rates, this value is said to be discharged over a period of fifteen minutes. The runoff coefficients to the system is assumed to be 1 for covered, paved or waterproofed area and 0.3 for permeable surfaces of any type, excluding cultivated areas from the calculation". Different solutions are available for the treatment of surface runoff or stormwater runoff. Rototec can provide complete treatment systems, consisting of:

**1) Storage tanks** designed to store rainwater and discharge it at predefined times and flow rates. Controlled discharges can be obtained by installing control valves or timed lifting systems specifically designed for the application. In this way, it is possible to provide storage and treatment offline, thus reducing risks deriving from the inflow of storm flows in excess of the capacity of the disposal system

**2) Inline treatment tanks** capable of continuous treatment of the stormwater runoff.

The storage system can be created using rotomoulded tanks, each having a volume of 10 m<sup>3</sup>, coupled together to create a battery of tanks of total capacity up to 60,000 litres. The grit and oil separation systems can treat effluent from storage systems in accordance with the requirements of Law Decree 152/2006 for discharge to public sewers and within the limits imposed by Table 3, Appendix 5 of the said Decree for discharge to surface watercourses. The treatment tanks are also designed for installation directly in the rainwater drainage pipeline for the continuous treatment of stormwater runoff. The grit and oil separators are sized in accordance with standard UNI-EN 858-1 and are available in gravity version (class II) and with coalescing filter system version (class I) for obtaining concentrations of hydrocarbons of specific weight less than 0,95 g/cm<sup>3</sup>. The innovative coalescing filtration system makes use of a polyurethane support capable of combining the finer oil particles in order to allow their separation from the water by means of gravity, thus trapping the pollutants inside the tank.

**N.B.: Underground installation instructions on page 107**



# 1. IPP – Treatment of stored stormwater runoff



## Technical characteristics

The plant includes a flow splitter, a storage system with automatic shut-off valve and timed submersible pump, a grit separation and oil separation system sized in accordance with standard UNI-EN 858-1 and in compliance with Law Decree 152/06. The plant is sized to treat the first 5 mm of rainfall, in that this is the only part in which pollutants are present, according to that indicated by Lombardy Regional Law n. 62 of 27th May 1985. Once the storage tank has been filled, the subsequent rainfall, defined as secondary and in theory non-polluting, flows directly to the receiving body of water thanks to the flow splitter located upstream of the storage tank. The stored and polluted rainwater is evacuated by a submersible pump controlled by an electric panel that regulates the emptying of the storage tank in such a manner that 48/72 hours after the rainfall, the system is ready for a new operating cycle. The treatment plant consists of a gravity oil separator in the case where the final effluent is discharged to a public sewer (in compliance with column 2 of table 3 of Law Decree 152/06). If, instead, the final effluent is discharged to a surface watercourse (in compliance with the severest limits in column 1 of table 3 of Law Decree 152/06), the treatment plant consists of a grit separator and a coalescing filter oil separator. When the storage system consists of just one tank (IPP 500, IPP 1000 and IPP 2000) the grit separator is installed upstream of the oil separator. If, instead, the storage system consists of a number of tanks, the task of the grit separator is performed by the first storage tank in which the suspended solids are settled. In both cases, as provided for by law, prior to discharging the treated effluent to the final receptor, a sampling chamber is installed from where it is possible to analyse the effluent. The plant is effective for the following parameters:

- Sedimentable solids.
- Total hydrocarbons and other light liquids that have not been emulsified of specific weight up to  $0,95 \text{ g/cm}^3$ .
- Unless otherwise specified, the peak flows in  $\text{m}^3/\text{h}$  for each single model must be less than that indicated on the technical data sheet.
- Unless otherwise specified, the surface area ( $\text{m}^2$ ) of the hardstanding to treat for each single model must be less than or equal to the limits indicated on the technical data sheet
- For that not specifically indicated, refer to the design data specified on the technical data sheet.

## Use

Separation of mineral oils, hydrocarbons and inert materials for:

- Car parks, garages and vehicle showrooms
- Service stations
- Vehicle washes
- Vehicle workshops and scrap yards

## Specification items

Treatment of stored stormwater runoff from impermeable areas with presence of mineral oils, hydrocarbons and heavy sediments coming from vehicles parks, stretches of road, storage areas, with function of stormwater detention system also, manufactured in **ISO 9001/2008 company**, in accordance with Legislative Decree n°152/2006 and sized in accordance with Lombardy Regional Law n°62 of 27th May 1985 for the storage of the first 5mm of rainfall and treatment within 48/72 hours after the rainfall, for underground installation, consisting of:

- flow splitting chamber in polyethylene (PE) one-piece structure fitted with inlet, by-pass and outlet pipes in PVC with watertight gasket in NBR rubber and threaded covers in polypropylene (PP) for inspection;
- storage system consisting of corrugated tanks in polyethylene (PE) one-piece structure fitted with hinged inspection covers in PE, tanks connected with flanged joints in PE; inlet pipe in PVC with watertight gasket in NBR rubber and check valve; n°1 submersible electric pump with control panel (max flow:  $1,5 \text{ l/s}$ );
- grit and oil separation system for the treatment of the stored water (max flow:  $1,5 \text{ l/s}$ );
- sampling chamber in polyethylene (PE) one-piece structure fitted with inlet and outlet PVC pipes with watertight gasket in NBR rubber and threaded covers in polypropylene (PP) for inspection.

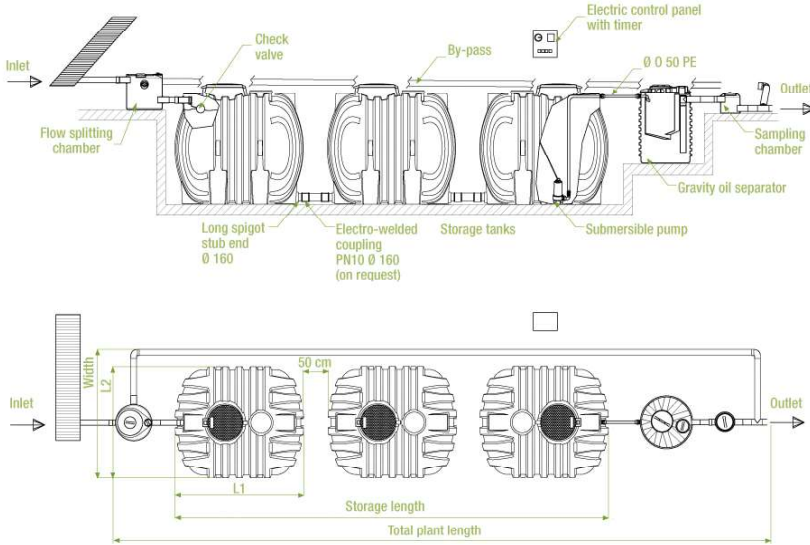
Optional extensions; treatment of stored stormwater runoff mod....., for open-air surface area of.....  $\text{mq}$ , with gravity or with coalescing filter oil separator for the discharge in public sewer or to surface watercourse.





# IPP Discharge to public sewer (Legisl. Decree n°152/06)

## INSTALLATION LAYOUT: IPP 6000 DO



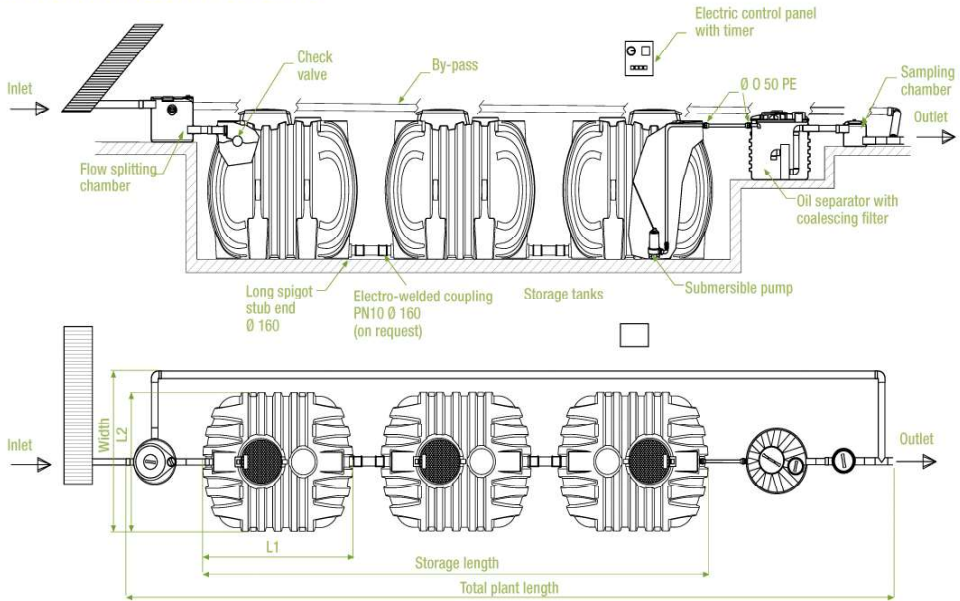
Item		IPP 500D0	IPP 1000D0	IPP 2000D0	IPP 3000D0	IPP 4000D0	IPP 6000D0	IPP 8000D0	IPP 10000D0	IPP 12000D0
Impermeable surface	m <sup>2</sup>	500	1000	2000	3000	4000	6000	8000	10000	12000
Rainfall volume	m <sup>3</sup>	2,5	5	10	15	20	30	40	50	60
Stormwater runoff flow	lt/s	2,8	5,5	11	16	22	33	44	55	66
Flow splitting chamber*	Item	PSC 051212IPP	PSC 051212IPP	PSC 051212IPP	PSC 051616IPP	PSC 051616IPP	PSC 052020IPP	PSC 052020IPP	PSC 102520IPP	PSC 102520IPP
	Ø	mm	790	790	790	790	790	790	790	1140
	H	mm	790	790	790	790	790	790	790	1160
	Ø I/O	mm	125	125	125	160	160	200	200	250/200
Storage system	Item	C13000	C15700	C110700	C15700	C110700	C110700	C110700	C110700	C110700
	n° of tanks	1	1	1	3	2	3	4	5	6
	Storage volume	lit	3000	5000	10000	15000	20000	30000	40000	50000
	L1	mm	2090	2420	2780	2420	2780	2780	2780	2780
	L2	mm	1500	1920	2430	1920	2430	2430	2430	2430
	H	mm	1720	2100	2580	2100	2580	2580	2580	2580
	Total length	m	~ 2	~ 2,3	~ 2,8	~ 7,5	~ 6	~ 9,3	~ 12,6	~ 15,9
	Ø I	mm	125	125	125	160	160	200	200	200
Pump		SM155L	SM155L	SM155L	SM155L	SM155L	SM155L	SM155L	SM155L	
Gravity oil separator	Item	NDO1500	NDO1500	NDO1500	NDO1500	NDO1500	NDO1500	NDO1500	NDO1500	NDO1500
	Volume	lit	1268	1268	1268	1268	1268	1268	1268	1268
	Ø	mm	1150	1150	1150	1150	1150	1150	1150	1150
	H	mm	1720	1720	1720	1720	1720	1720	1720	1720
	Ø Ø	mm	125	125	125	125	125	125	125	125
Sampling chamber	Item	PPF	PPF	PPF	PPF	PPF	PPF	PPF	PPF	PPF
	Ø	mm	430	430	430	430	430	430	430	430
	H	mm	465	465	465	465	465	465	465	465
Overall plant dimensions	Length	m	~ 7	~ 7	~ 8	~ 12,5	~ 11	~ 14	~ 17	~ 20
	Width	m	~ 2,5	~ 3	~ 3	~ 3	~ 3	~ 3	~ 3	~ 3

(\* ) In the case of non standard pipes, contact our technical office.

# IPP – Discharge to surface watercourse (Legisl. Decree n°152/06, table 3)



## INSTALLATION LAYOUT: IPP 6000 DOFC



Item		IPP 500DOFC	IPP 1000DOFC	IPP 2000DOFC	IPP 3000DOFC	IPP 4000DOFC	IPP 6000DOFC	IPP 8000DOFC	IPP 10000DOFC	IPP 12000DOFC	
Impermeable surface	m <sup>2</sup>	500	1000	2000	3000	4000	6000	8000	10000	12000	
Rainfall volume	m <sup>3</sup>	2,5	5	10	15	20	30	40	50	60	
Stormwater runoff flow	lt/s	2,8	5,5	11	16	22	33	44	55	66	
Flow splitting chamber*	Item	PSC 051212IPP	PSC 051212IPP	PSC 051212IPP	PSC 051616IPP	PSC 051616IPP	PSC 052020IPP	PSC 052020IPP	PSC 102520IPP	PSC 102520IPP	
	Ø	790	790	790	790	790	790	790	1160	1160	
	H	790	790	790	790	790	790	790	1160	1160	
	Ø E/U	125	125	125	160	160	200	200	250/200	250/200	
Storage system	Item	CI3000	CI5700	CI10700	CI5700	CI10700	CI10700	CI10700	CI10700	CI10700	
	n° of tanks	1	1	1	3	2	3	4	5	6	
	Storage volume	lt	3000	5000	10000	15000	20000	30000	40000	50000	60000
	L1	mm	2090	2420	2780	2420	2780	2780	2780	2780	2780
	L2	mm	1500	1920	2430	1920	2430	2430	2430	2430	2430
	H	mm	1720	2100	2580	2100	2580	2580	2580	2580	2580
	Total length	m	~ 2	~ 2,3	~ 2,8	~ 7,5	~ 6	~ 9,3	~ 12,6	~ 15,9	~ 19,2
	Ø l	mm	125	125	125	160	160	200	200	200	200
Pump		SM155L	SM155L	SM155L	SM155L	SM155L	SM155L	SM155L	SM155L	SM155L	
Grit separator	Item	NDD1500	NDD1500	NDD1500							
	Volume	lt	1193	1193	1193	-	-	-	-	-	
	Ø	mm	1150	1150	1150	-	-	-	-	-	
	H	mm	1720	1720	1720	-	-	-	-	-	
	Ø O	mm	125	125	125	-	-	-	-	-	
Oil separator with coalescing filter	Item	NDOFC1000 1,5 l/s	NDOFC1000 1,5 l/s	NDOFC1000 1,5 l/s	NDOFC1000 1,5 l/s	NDOFC1000 1,5 l/s	NDOFC1000 1,5 l/s	NDOFC1000 1,5 l/s	NDOFC1000 1,5 l/s	NDOFC1000 1,5 l/s	
	Ø	mm	1125	1125	1125	1125	1125	1125	1125	1125	
	H	mm	1220	1220	1220	1220	1220	1220	1220	1220	
Sampling chamber	Item	PPF	PPF	PPF	PPF	PPF	PPF	PPF	PPF	PPF	
	Ø	mm	430	430	430	430	430	430	430	430	
	H	mm	465	465	465	465	465	465	465	465	
Overall plant dimensions	Length	m	~ 8	~ 9	~ 9,5	~ 12,5	~ 11	~ 14	~ 17	~ 20	~ 23
	Width	m	~ 2,5	~ 3	~ 3	~ 3	~ 3	~ 3	~ 3	~ 3	

(\* In the case of non-standard pipes, contact our technical office.



# Accessories for stormwater runoff treatment

## Control panel for stormwater runoff plant (included in the supply)



**Application** Pump start-up panel for stormwater runoff plant. The start-up command can be either manual or automatic by means of a timer (supplied). To adjust the timer and set a delay time of 24 hours, follow the instructions on the attached technical data sheet.

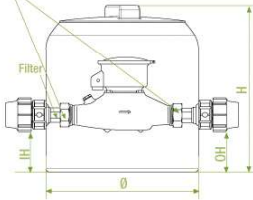
The panel is also fitted with visual alarms (indicator lights). The power supply is single-phase (domestic type: 230 V).

**Installation** In the case where the direct starter is installed outside and not protected against atmospheric agents, it should be housed in an appropriate casing or cabinet with protection grade IP55.

**Construction characteristics** Door lock switch (1); manual or automatic selector (2); n°4 indicator lights (green, yellow, red): running - on - thermal trip (3); thermal relay and set of fuses for motor protection; fuses on auxiliary circuit; 24 V contactors; box in plastic material

Item	Height mm	Length mm	Width mm	Voltage V	Frequency Hz	Operating temperature	Protection grade
QIPP2HP	130	300	220	230	50	-5°C/+40°C	IP 55

Rings for the disassembly and the control of the counter litre



## Counter litre chamber (on request)

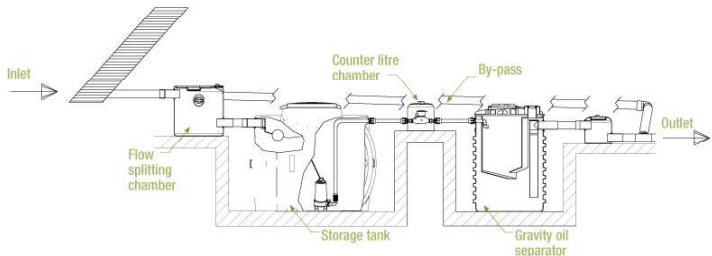
**Material** Smooth tank in one-piece linear high density polyethylene (LLDPE) complete with volumetric counter litre with turbine and fitted with threaded cover in polypropylene (PP).

**Application** The counter litre chamber is installed, where requested, downstream a treatment of stored stormwater runoff and measures the flow of the effluent.

**Use and maintenance** In the inlet pipe there is a grid that traps coarse material (debris, leaves, grit,...) to avoid any problems to the turbine. It is good practice to periodically check the chamber and to clean the filter by removing the accumulated material.



Item	Ø mm	H mm	IH mm	OH mm	Ø cover mm	Extension	Caliber mm	Max flow rate m <sup>3</sup> /h	Nominal flow m <sup>3</sup> /h	Flow rate min. lt/h	Sens. l/h	Min. resolution lt
PCLT 50	430	430	120	120	300	PP 35	32	12	6	120	15	0,05





### Technical characteristics

The plant allows the continuous treatment of stormwater runoff from impermeable surfaces up to 7200 m<sup>2</sup> used for transit or parking in industrial areas, residential zones and service stations subject to possible pollution from mineral oils, hydrocarbons, sand/grit and inert materials. The stormwater runoff treatment system makes use of the action of a grit and oil separator in continuous operation capable of treating flows of up to 40 l/s. Runoff from impermeable transit areas must be carried to the treatment system. The treatment tanks receive the flow appertaining to first 5 mm of rain falling over a 15 minute period. For higher flows, the bypass is activated which sends the excess to the stormwater storage tanks. The treatment plant consists of a grit separator and an oil separator with coalescing filter, thus ensuring that the final effluent possesses the appropriate characteristics for discharge to a body of surface water (Appendix 5 table 3 Law Decree 152/2006). The plant is effective for the following parameters:

- Sedimentable solids.
- Total hydrocarbons and other light liquids that have not been emulsified of specific weight up to 0.95 g/cm<sup>3</sup>.
- Unless otherwise specified, the peak flows in m<sup>3</sup>/h for each single model must be less than that indicated on the technical data sheet.
- Unless otherwise specified, the surface area (m<sup>2</sup>) of the hardstanding to treat for each single model must be less than or equal to the limits indicated on the technical data sheet
- For that not specifically indicated, refer to the design data specified on the technical data sheet.

### Use

Separation of mineral oils, hydrocarbons and inert materials for:

- Car parks, garages and vehicle showrooms
- Service stations
- Vehicle washes
- Vehicle workshops and scrap yards

### Specification items

Continuous treatment of stormwater runoff from impermeable areas with presence of mineral oils, hydrocarbons and heavy sediments coming from vehicules parks, stretches of road, storage areas, manufactured in **ISO 9001/2008 company**, in accordance with Legislative Decree n°152/2006 and sized in accordance with Lombardy Regional Law n°62 of 27th May 1985 for the treatment of a 15 minutes rainfall with stormwater runoff flow of 5mm, for underground installation, consisting of:

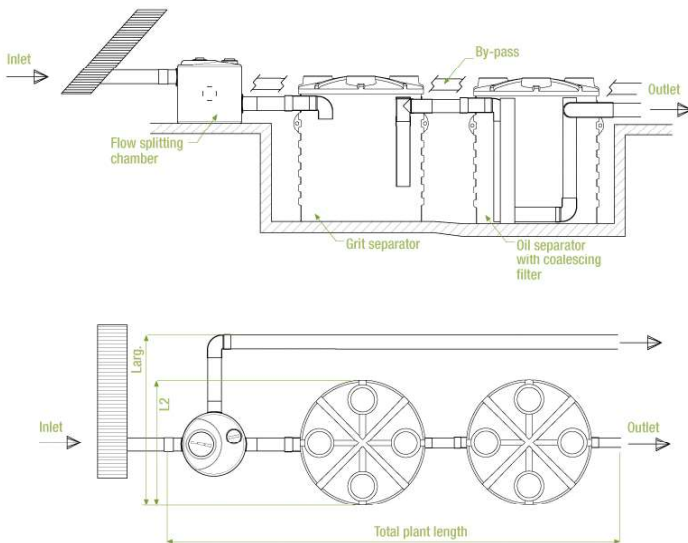
- flow splitting chamber in polyethylene (PE) one-piece structure, fitted with inlet, by-pass and outlet pipes in PVC with watertight gaskets in NBR rubber and threaded covers in polypropylene (PP) for inspection;
- grit and heavy sediments separator in polyethylene (PE) one-piece corrugated structure, manufactured in accordance with UNI-EN 1825-1 norm, fitted with inlet pipe with watertight gasket in NBR rubber and 90° elbow in PVC for dampening and distributing the flow, and with outlet pipe with watertight gasket in NBR rubber, deflector T and pipe in PVC, for discharging treated effluent. The top is fitted with biogas vent and two threaded covers in polypropylene (PP) for inspection, emptying and cleaning purposes;
- suspended soils and hydrocarbons separation treatment, in polyethylene (PE) one-piece structure, manufactured in accordance with UNI-EN 858-1 norm, fitted with: inlet pipe with 90° elbows in PVC with watertight gasket in NBR rubber for the dampening and distribution of the flow, outlet pipe in PVC with a coalescing filter made of polyurethane sponge, put in an inox steel pull-out basket, biogas vent, threaded covers in polypropylene (PP) for inspection, emptying and cleaning purposes; Optional extensions; continuous treatment of stormwater runoff mod....., for open-air surface area.....mq, design flow.....lt/s.





# IPC - Discharge to surface watercourse (Legisl. Decree n°152/06, table 3)

## INSTALLATION LAYOUT: IPC 7200



Item		IPC270	IPC360	IPC540	IPC720	IPC1350	IPC1800	IPC2700	IPC3600	IPC5400	IPC7200
Impermeable surface	m <sup>2</sup>	270	360	540	720	1350	1800	2700	3600	5400	7200
Design flow	lt/s	1,5	2	3	4	7,5	10	15	20	30	40
Overall useful volume	lt	1624	2042	1967	2461	4032	4960	6201	7345	13645	15357
Maximum grit collection volume	lt	150	200	300	400	860	1000	1500	2000	3000	4000
Minimum oil storage volume	lt	27	35	53	70	152	176	225	300	450	600
Flow splitting chamber	Item	PSC 051212IPC	PSC 051212IPC	PSC 051212IPC	PSC 051212IPC	PSC 051212IPC	PSC 051212IPC	PSC 052020IPC	PSC 052020IPC	PSC 052020IPC	PSC 102525IPC
	Ø	mm	790	790	790	790	790	790	790	790	1140
	H	mm	790	790	790	790	790	790	790	790	1160
	Ø I/O	mm	125	125	125	125	125	125	200	200	250
Grit separator	Item	NDD1000	NDD1000	NDD1500	NDD1500	NDD2600	NDD3200	NDD3800	NDD4600	NDD7000	NDD9000
	Ø	mm	1150	1150	1150	1150	1710	1710	1710	2250	2250
	H	mm	1220	1220	1720	1720	1350	1625	1855	2125	2367
	Ø I/O	mm	125	125	125	125	125	125	200	200	250
Oil separator with coalescing filter	Item	NDOFC 1000 1,5 l/s	NDOFC 1500 2 l/s	NDOFC 1000 3 l/s	NDOFC 1500 4 l/s	NDOFC 2600 7,5 l/s	NDOFC 3200 10 l/s	NDOFC 3800 15 l/s	NDOFC 4600 20 l/s	NDOFC 7000 30 l/s	NDOFC 9000 40 l/s
	Ø	mm	1150	1150	1150	1150	1710	1710	1710	2250	2250
	H	mm	1220	1220	1720	1720	1350	1625	1855	2125	2367
	Ø I/O	mm	125	125	125	125	125	125	200	200	250
Overall plant dimensions	Length	m	4,3	4,3	4,3	4,3	5,4	5,4	5,4	6,8	6,8
	Width	m	1,3	1,3	1,3	1,3	1,9	1,9	1,9	2,4	2,4

(\* In the case of non-standard pipes, contact our technical office.