TECHNICAL MANUAL

Coalescence separators
NIXOR NK
NIXOR NKO
NIXOR NKB
NIXOR NKOB

nixor
Professional for the environment

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1. Product characteristics.

1.1. Application

Coalescence separators NIXOR-NK, coalescence separators with settling tank NIXOR-NKO, coalescence separators with by-pass NIXOR-NKB and coalescence separators with by-pass and with settling tank NIXOR-NKOB are high-efficiency devices used for pre-treatment of rainwater. During sewage flow through devices, due to the gravitational flotation assisted by the coalescence, petroleum substances are retained. Additionally, in separators with settling tanks, due to the gravitational sedimentation, suspensions are retained.

1.2. Construction

The device body consists of a bottom with mounted equipment where the superstructure rings are placed. As a top of the tank is a reinforced concrete cover with a manhole. The joints between the body elements are sealed with elastomer seals, waterproof mortar or bituminous seals.

The separator's equipment is made of PE and stainless steel, and the coalescence insert - of polyurethane foam.

2. Installation

The separator mounted on load-bearing grounds, does not require the preparation of a special foundation. The bottom of the excavation is prepared by making the substructure (concrete B-10 thickness 10 cm or well compacted layer of gravel or other coarse cohesive soil about 20 cm thick).

If the case of non-loadbearing grounds, the method of foundation requires a separate design study.

Set the separator body on properly prepared surface, after checking the ordinates, then connect the pipes, install the superstructure rings and the cover. After that backfill the trench thoroughly compacting. The pipes covering and soil compaction should be done carefully, preventing damage the pipe connections with the separator.

In the case of non-aggressive groundwater, concrete elements do not require the use of external damp-proof course.

After assembling the body, fill the tank with water up to the outlet pipe and insert a float closure.

When storing equipment prior to planned assembly, equipment components should not be exposed to rapid temperature changes and UV radiation.

2.1.Equipment installation instructions of coalescence separators NK and NKO marked „B” in the name

- from the inside of the tank insert the appropriate oil-resistant NBR seals into the inlet and outlet openings
- apply a lubricant to the gaskets and pipe ends inserted into the gaskets
- insert the inlet and outlet pipes into the seals and press so the fastening elements touch the tank walls
- drill holes at the fastening points. Drill diameter – 8 mm, hole depth – 65 mm
- fix the pipes to the walls using the PSR A4 anchors (inlet pipe – 4 anchors, outlet pipe– 5 anchors)
- fix the float gib to the outlet pipe plate (nut and washer above the plate and washer and nut below the plate)
- fill the tank with water up to the outlet pipe and insert a float
- insert a basket with coalescing foam.

2.2. Equipment installation instructions of coalescence separators NKB, NKOB marked „B” in the name

- if the inlet and outlet openings are sealed using NBR lip seals, the seals must be installed from the inside of the tank

- apply a lubricant to the gaskets and pipe ends inserted into the gaskets

- insert the inlet pipe (with bottom drain) and push it far enough to insert the outlet pipe (with the outlet pipe). Then insert the outlet pipe and slide both pipes together so that the flanges touch each other, and pipe sections protruding outside the tank were of the same length.

- set the pipes so that the bottom drain in the inlet pipe and outlet drain is in a vertical position, as per the drawing of the device.

- after correctly positioning the pipes, drill holes in the flanges. If there are uneven surfaces at the flange contact surface, a sealant should be introduced between the flanges. The flanges must be screwed together using stainless screws.

- fix the float gib to the outlet pipe plate (nut and washer above the plate and washer and nut below the plate)

- fill the tank with water up to the outlet pipe and insert a float

- insert a basket with coalescing foam.

In devices with the designation "B" in the name, the equipment should be installed immediately after delivery (up to 30 days after delivery).

3. Operation

The correct operation of the separator is conditioned by the correct use of the device. Maintenance operation should be carried out by an entity designated or confirmed by the manufacturer, at least every month and it includes the checking of:

- the level of sludge in the settling tank,

- the thickness of the oil layer
- coalescence material contamination
- the float contamination.

The results of the conducted operations should be included in the operational card.

Based on the inspection the following actions should be taken :

- with oil layer thickness above 10 cm - oil removal by licensed service company
- with sludge level above 30 cm – sludge removal by licensed service company
- in the case of float or coalescence material contamination - the cleaning.

It is recommended to clean the separator at least once per year – removal of sludge and wastewater and cleaning of equipment. After completing the work, fill the tank with water up to the outlet pipe and insert a float closure.

NOTE!

The separator user is required to register the amount of loaded impurities.

The company collecting and utilizing pollution must have the appropriate permits.

3.1. Operating instructions for the coalescence separator.

Coalescence separator is used to pre-treat rainwater from urban watersheds, petrol stations, storage areas, auto-repair shops, car washes and from watersheds area with less contamination with petroleum substances, such as roads, parking lots, maneuvering areas, etc. The high efficiency of sewage treatment from petroleum substances is achieved thanks to the use of coalescence insert. Sewage flowing into the device flow through the coalescence material, where the high-efficient treatment of wastewater from impurities occurs.

The separator should cooperate with the preceding additional sludge settling tank, in which the mineral sludge stops. The size of the settling tank should be adapted to local conditions and the required level of rainwater treatment.

DEVICE CONTROL

Cleaning the separator (removal of accumulated impurities) significantly affects the operating conditions of the device. The amount of petroleum substances accumulated in the separator, the level of filling the settling tank with the sludge, the condition of internal equipment elements, especially the coalescent insert are factors influencing the efficiency of separation. Therefore, it is extremely important to carry out inspections and take operational actions quickly if they need to be carried out.

Both the separator and the integrated settling tank should be controlled of the amount of retained petroleum compounds and sludge. The results of each inspection should be recorded in the Separator Inspection Card.

The scope and frequency of separator control are shown in the table:

Frequency	Inspection and checking	Possible results Notes	Maintenance and cleaning works
Once a month	control of the amount of solid impurities in the inlet chamber	Large amount of impurities	removal of impurities
	oil layer thickness control	the oil layer is over 10 cm thick	oil removal by licensed service company
	Control of the sludge level in the settling tank	level of the sludge mirror above half of the sludge chamber	cleaning of the separator by licensed service company

Checking the thickness of the layer of separated petroleum compounds is done with a stick and paste used to detect the water (oils do not cause discoloration of the paste).

The content of the settling tank of the amount of the sludge is checked with the measuring rod or the disc probe.

Checking the amount of sludge also relates to an additional settling tank cooperating with the separator. Cleaning of the settling tank should be started after it has been confirmed that the sludge has filled at least half the capacity of the settling tank.

To clean the coalescence insert, flush the impurities with high pressure water. These operations should be carried out so that the polluted water passes through the oily sewage treatment system.

REMOVAL OF RETAINED PETROLEUM COMPOUNDS AND SUSPENSIONS

The separator and the settling tank cooperating with it should be cleaned min. twice a year for the first 3 years of use and for the next years at least once a year, however, keep in mind, that the frequency of removal of accumulated pollutants depends on local conditions (size and type of catchment, amount of precipitation, quality of water flowing into the separator, etc.). Equipment cleaning should be started each time after significant settling in the tank (or in the settling chamber) or accumulating a large amount of petroleum substances (see table above).

Separated petroleum compounds and sludge are removed using a specialized slurry tanker. The company collecting the pollution must have the appropriate permits.

The separator user, in accordance with the Waste Act, is obliged to keep records of waste. As a confirmation of cleaning and waste reception, the separator user receives the Waste Record Card and the Waste Transfer Card, which is required to keep and show at the request of the authority conducting the control.

Each cleaning of the separator should be noted on the Separator Inspection Card.

When cleaning the separator, the following operations are performed:

- thorough removal of accumulated petroleum compounds and pumping rainwater from the separator using a slurry tanker;
- wall and coalescence insert cleaning (flushing with clean water under pressure). Cleaning should be carried out in such a way that contaminated water passes through the oily sewage treatment system.

In the case of the components damage, these components must be replaced;

- removing the sludge from the settling tank;
- thorough cleaning of individual separator chambers (flushing the inside of the chambers with clean water and emptying the separator again);
- checking connections, removing any leaks (e.g. with sealing foam);
- filling the separator with clean water;
- manhole closing.

Separator Inspection Card

The attachement to this manual is Separator Inspection Card, which should be completed after each inspection and cleaning of the device. For 3 years, after each year of operation of the device, a copy of the Card should be delivered to NIXOR Sp. z o.o. Sp.k. company's headquarters.

In case of questions or doubts regarding the operation of the separator, please contact us by phone: tel.: +48 58 351-33-11

Proper operation of the separator, conducting the inspections and removing impurities retained in the separator and cooperating settling tank reported in Separator Inspection Card are a condition for recognizing warranty services.

THE OPERATION OF COALESCENCE SEPARATOR

The separator inspection:

- cover inspection and manhole control;
- manhole opening;
- removal of accumulated leaves, branches and other impurities;
- checking the amount of accumulated oil substances and sludge;
- manhole closure
- checking the amount of sludge accumulated in the settling tank before the separator

If during the inspection a large amount of retained sludge or oil substances is found, the separator/ or settling tank should be cleaned.

Cleaning of the separator:

- complete removal of oil substances and water from the separator using a specialized slurry tanker;
- cleaning the coalescence insert and its possible replacement in the case of damage;
- removal of sand and sludge from the settling tank;
- cleaning and checking the interior of the separator;
- filling the separator with clean water;
- manhole closure.

SEPARATOR INSPECTION CARD

The card should be filled in after each inspection and cleaning the separator

Coalescence separator NK……..

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Type of separator

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…….....

Location (address, object, type of network on which the separator is mounted)

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Name and address of the user

no.	Date of inspection	Technical condition of devices	The amount of oil in the separator cm	The amount of sludge in the settling tank cm	The amount of sludge in the settler preceding the separator cm	Addtitional notes	Signature of the controlling person
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							

4. Warranty conditions

1. The manufacturer provides a warranty for 12 months from the date of product delivery.
2. The warranty covers only physical defects of the product disclosed during the warranty period

and using the product for its intended purpose.

3. The manufacturer is released from the warranty and any obligations arising from the warranty in the case that:

a) the product has damage resulting from:
- natural material consumption as intended
- improper installation
- improper use
- improper transport or storage
- external force

b) the buyer has made construction changes on his own

c) the assembly was made contrary to the applicable technical manual

4. The validity of warranty obligations will be considered on the basis of a handover protocol, separator inspection card and a written complaint.

5. Defects revealed during the warranty period which prevent the product from working properly will be removed within 30 days from the date of access to the device.

6. The warranty is extended for the period from gaining access to the device until the end of the warranty repair.

4. In the case of a product defect preventing further correct operation, the manufacturer must replace the defective items for full value.

5. The rights arising from the warranty are only valid after the contracting party has fulfilled its obligations towards the manufacturer.

6. The warranty services cover only damage to the device. This warranty does not cover any other claims, in particular any consequences caused by damage to the device.

7. When making a complaint, the manufacturer deducts the cost of missing or damaged items due to the buyer.