

oventrop

Oil, Solar

Heating oil technology



Content

- 2 Introduction
Note regarding liquid fuels
- 3 Heating oil technology
- 4 Combination heating oil filter/heating oil deaerator
"Toc-Duo-3"
- 5 Heating oil deaerator
"Toc-Uno"
- 6 Heating oil filters
"Oilpur"
- 7 Tank equipment
- 8 Tank equipment in the pipework
- 9 Connection system
"Ofix-Oil"

Note regarding liquid fuels:

Heating oil is a liquid fuel produced from fossil mineral oil.

In order to guarantee the sustainable conservation of the fossil deposits, liquid fuels which are, for instance, retracted from renewable raw materials, the so-called "alternative additives" or "bio oils", can be added to the heating oil.

These are amongst others bio diesel (FAME = fatty acid methyl esters), RME (rape methyl esters), rape oil, palm oil etc.

The fatty acids of the bio oils may cause damage to conventional seals and hoses.

In general, the components in existing installations can be used for a bio proportion up to 5%.

The Oventrop products for heating oil installations are equipped with seals which are suitable for "alternative additives".

The products can be used for up to 20% "alternative additives".



Some components can be used for up to 100% "alternative additives" (e.g. heating oil filters marked "A" with metal filter cup PN 16, "Toc-Duo-3" made of metal and "Toc-Uno-B").



Recommendation when changing to bio heating oil (low sulphur heating oil with bio proportion):

- The heating oil tanks should be empty.
- Before filling, the tank should be cleaned and residual oil be disposed of.
- A one pipe system is strongly recommended for the pipework.
- Filter inserts with a large surface should be used, for instance "opticlean".
This does especially apply if the tank has not been cleaned.

Reasons:

- Bio proportions (FAME) may release existing deposits which may block the filter inserts.
- Returning heating oil in two pipe systems may have an adverse effect on the storage life of the oil.
- The mix of old sulphurous and new low sulphurous oil can lead to corrosion at the flame tubes of the burner (metal dusting).

With the Oventrop heating oil technology, the specifying engineer and plumber may fulfil the demands of almost any heating oil installations.

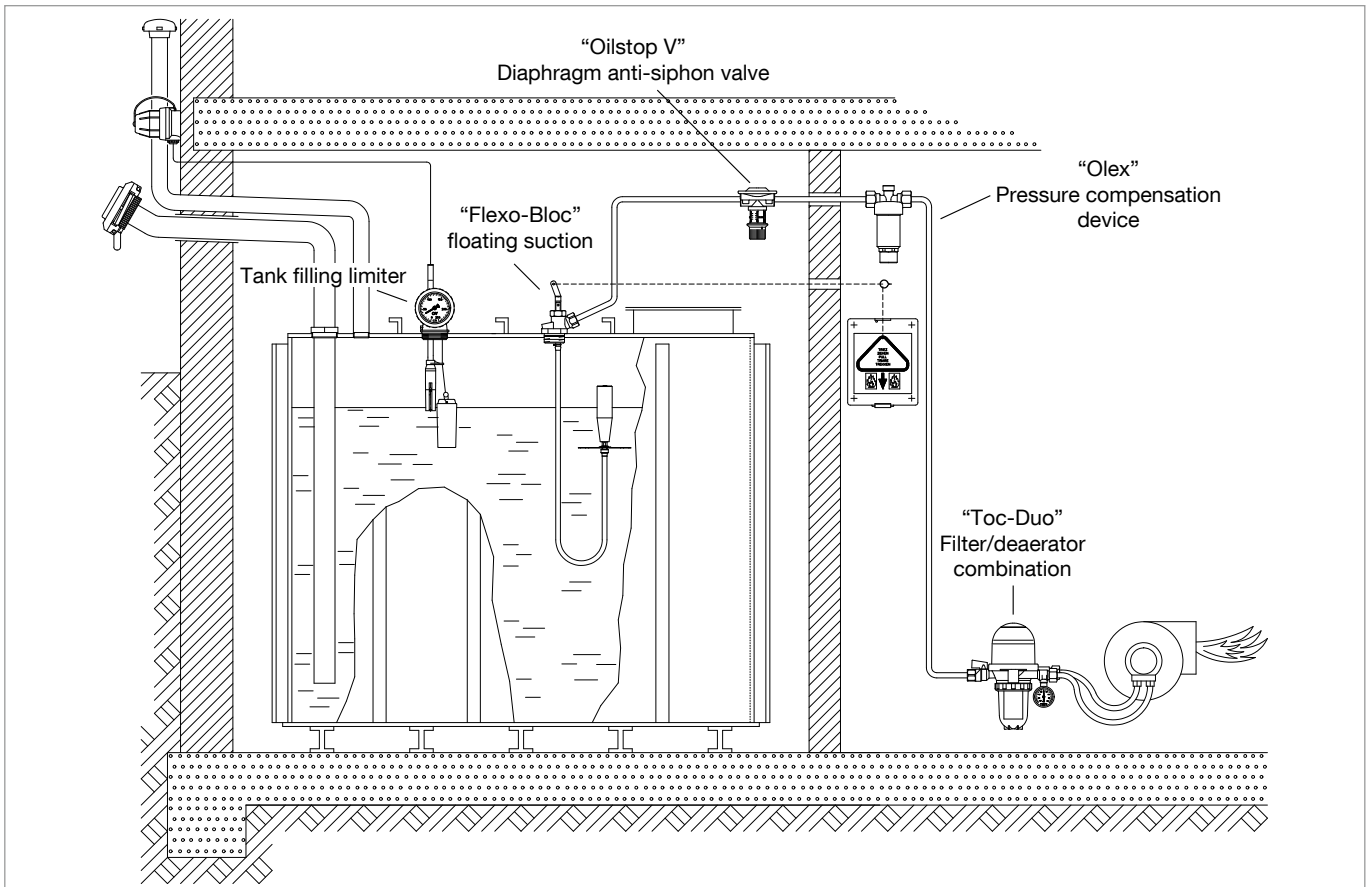
The programme ranges from fittings for tank filling, oil draining facilities and anti-siphon valves to the connection of the burner pump behind the filter and deaerator.

Heating oil filters are manufactured in various types (filters for two pipe systems and one pipe systems with/ without return flow feed).

Heating oil deaerators and a combination consisting of a filter and a deaerator are available for one pipe systems with return flow feed.

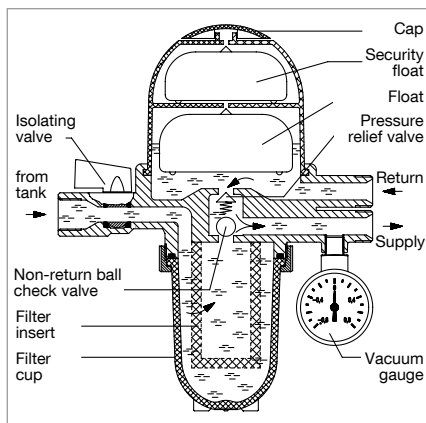
Advantages:

- various models with different connection options
- extensive accessories
- TÜV approved
- filters and deaerators DIN tested
- suitable for bio heating oils, see following remarks





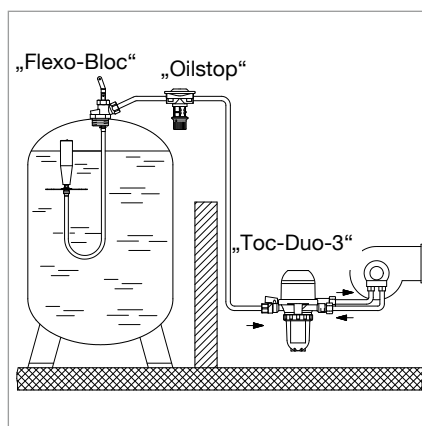
1



2



3





4

The heating oil filter/heating oil deaerator combination "Toc-Duo-3" is used in heating oil installations (suction system) according to DIN 4755 which are operated as one pipe systems with return flow feed. A return pipe to the tank no longer being required makes the installation not only more cost effective but also safer.



Advantages:

- quick and simple installation
- trouble-free feeding of heating oil to the burner
- no return pipe to the tank required
-  suitable for bio heating oils with a bio proportion of up to 20%
-  metal model suitable for bio heating oils with a bio proportion of up to 100%
- installation is possible below and above the oil level
- high deaeration capacity
- fixing plate for right and left hand side connection
- suitable for areas prone to flooding
- hose to expel vapour emissions available as accessory
- available with different filter inserts

1 The heating oil filter/heating oil deaerator combination "Toc-Duo-3" (illustration with Siku filter insert and vacuum gauge) takes over different tasks which are essential for the trouble-free operation of a heating oil installation:

- isolation of the supply from the tank
- cleaning of the heating oil with the help of the filter
- deaeration of the heating oil with the help of the deaerator
- control of the suction pressure and the degree of contamination of the filter with the help of the vacuum gauge (optional)
- evacuation of air and vapour emissions from the oil circuit

2 Construction and function

The heating oil is drawn via the suction pipe, isolating valve and filter. The oil returning from the pump contains air and is therefore fed into the vent pot of the "Toc-Duo-3". The air is expelled and the oil is fed into the supply pipe.

Example:

Pump ~50 l/h
Consumption at 20 kW ~2 l/h
Flow of returned heating oil = 50 - 2 = 48 l/h

3 "Toc-Duo-3" Heating oil filter/heating oil deaerator combination (illustration with fine filter insert "opticlean" but without vacuum gauge).

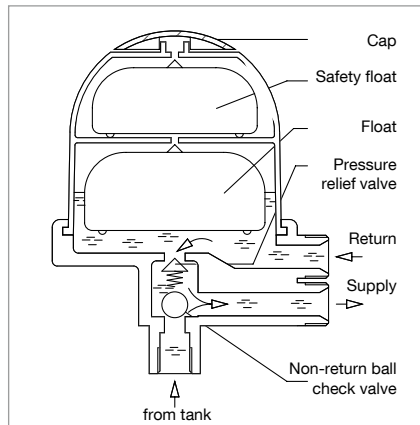
4 System illustration



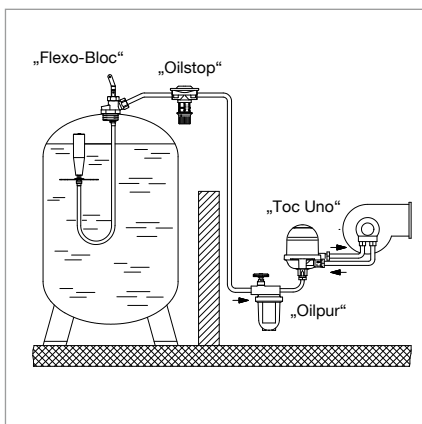
1



2



3





4

1 The heating oil deaerator "Toc-Uno" ensures a trouble-free deaeration of the heating oil. It is used in heating oil installations (suction system) according to DIN 4755 which are operated as one pipe systems with return flow feed – always in combination with a filter for one pipe systems. A return pipe to the tank no longer being required makes the installation not only more cost effective but also safer.



Advantages:

- quick and simple installation
- trouble-free feeding of the heating oil to the tank
- no return pipe to the tank required
-  "Toc-Uno-A" suitable for bio heating oils with with bio proportion of up to 20%
-  "Toc-Uno-B" with metal deaerator cap suitable for bio heating oils with a bio proportion of up to 100%
- installation is possible above and below the oil level
- high deaeration capacity
- fixing plate for right and left hand side connection
- suitable for areas prone to flooding
- hose to expel vapour emissions available as accessory
- lateral outlets

2 Hose nipple with 10 m hose
The deaerator expels vapour emissions into the atmosphere which may lead to odour nuisances in badly ventilated boiler rooms. The emissions can be expelled to the outside and odour nuisances be avoided by connecting a hose nipple with 10 m hose to the heating oil deaerator.

3 Construction and function
The heating oil is drawn via the suction pipe, heating oil filter and deaerator body. The oil returning from the pump contains air and is therefore fed into the vent pot of the "Toc-Uno". The air is expelled and the oil is fed into the supply pipe.

Example:

Pump	~50 l/h
Consumption at	20 kW~2 l/h
Flow of returned heating oil =	50 - 2 = 48 l/h

4 System illustration



1



2

Heating oil filters “Oilpur” for EL type of heating oil and heating oils with a bio proportion of up to 20% (marking “A” on the body). In combination with a metal filter cup, the filters are also suitable for heating oils with a bio proportion of up to 100 %.



Sizes DN 8, 10 and 15 or G ¼ G ⅜ and G ½ .

The female threads G ⅜ on the tank side are suitable for Oventrop compression fittings 6, 8, 10 or 12 mm. For the direct connection of burner hoses, size DN 10 is also available with male thread G ⅜ with inner taper on the burner side.

The filters can be easily fixed using the brackets and the filter inserts via the bayonet catches.

1 Heating oil filter “Oilpur” for one pipe systems with return flow feed, DN 10 and DN 15, with isolation. With airvent expelling air prior to operation.

2 Heating oil filter “Oilpur” for one pipe systems, DN 10 and DN 15, with isolation.

Illustration with filter insert “Magnum” Award for heating oil filters “Oilpur”:



Busse Design Ulm
Longlife Design Award

3 Oventrop offers filter inserts for the heating oil filters “Oilpur” and the filter/ deaerator combination “Toc-Duo-3” of different materials and with different mesh sizes (see table on the left hand side).

The filter inserts have a bayonet catch and are interchangeable (except for filter cartridge PN 10). Most of the filter inserts cannot be cleaned; they have to be replaced at the beginning of each heating period.

Note:

Heating oil filters for two pipe systems can be found in the Oventrop catalogue or under www.oventrop.com.

Illustration	Item no.	µm	Filter insert	Description
	2126484	2	“opticlean” Fine filter insert long MX-11	Paper filter insert for finest filtering. The insert with a mesh size of 2 µm is a “high end” filter.
	2126454 2126474	5 - 20 5 - 20	“opticlean” Fine filter insert short MC-7 long MC-18	Paper filter insert for finest filtering with a very large surface. Recommended for one pipe systems which are operated with bio heating oils.
	2126400	25	Cartridge PN 10	Fine filter consisting of metal cup with internal filter insert (to be used in combination with an adapter).
	2126300 2126354 2126355 2126371	50 - 75 25 - 40 50 - 75 25 - 40	Sintered plastic Siku Siku for “Magnum”	The sintered plastic insert consists of a mass of miniature plastic balls. Its surface is enlarged by the inwards drawn form.
	2126051	50 - 100	Sintered bronze Sika 0	The sintered bronze insert (Sika) consists of a mass of miniature bronze balls. It is dimensionally stable and allows for very fine filtering.
	2126100	100 - 150	Stainless steel	The insert is a rugged insert and provides good quality of filtering coarse impurities. The longlasting insert is especially suitable for installations with higher capacities.
	2126200	50 - 75	Felt	The felt insert provides very fine filtering and many ageing by-products of the heating oil are filtered out (recommended for 30 kW and higher)



1



2



3



4



5



6



7

1 The tank inlet cap with bayonet catch according to DIN EN 14420-6 can be directly connected to the hose coupling of road tankers.

2 The screwed tank inlet cap serves the solid connection of the filling hose during filling operation. Oventrop also offers a green powder coated cap with chain for low sulphur EL type of heating oil (with additional red tag "Also suitable for standard EL type of heating oil"). The red tag is fixed where both types of heating oil (low sulphur and standard) are allowed.

3 The vent cap protects the heating oil from penetrating rain water and dirt.

4 Fuel gauge lock with screwed cap and comfortable universal fuel gauge lock.

5 The mechanical level indicators serve to control the oil level. A set for subsequent installation for plastic tanks without free screw-in opening is also available. Pneumatic level indicators and accessories are available for underground tanks.

6 The tank filling limiter protects the tank from overfilling. It is mandatory for tanks with a content of more than 1.000 litres. The tank filling limiters are available for underground and cellar tank, also in combination with the oil draining facility "Flexo-Bloc" or a mechanical level indicator.

7 Oil draining facility "Flexo-Bloc" for one or two pipe systems. It is also available with floating suction or tank filling limiter.

A Bio20 For EL type of heating oil and heating oils with a bio proportion of up to 20% (marking "A")

Suitable reducers as well as a release cord are available as accessories (not illustrated).



1



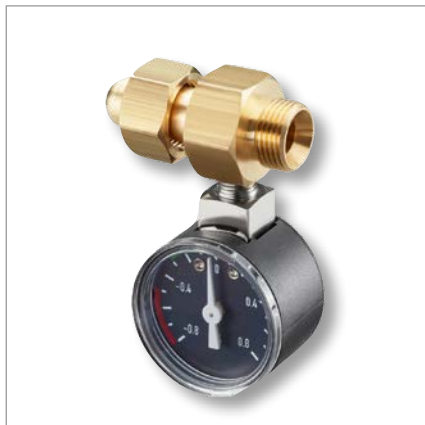
2



3



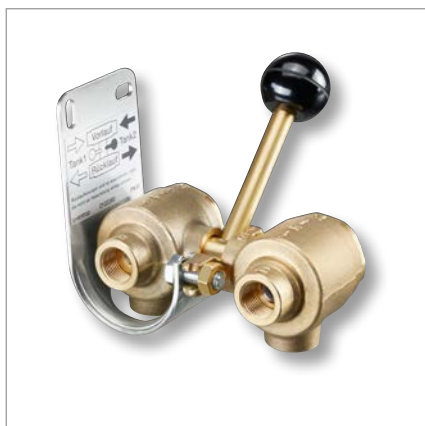
4



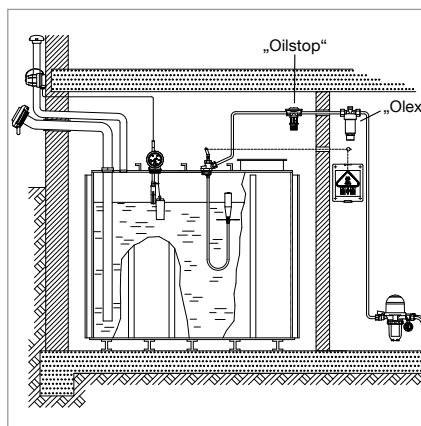
5



6



7



8

1 The diaphragm anti-siphon valve "Oilstop V" prevents the oil in the tank being siphoned off should a leakage occur in the suction pipe between the anti-siphon valve and the burner. The valve is approved for EL type of heating oil and bio heating oils with a bio proportion of up to 15% as well as ambient temperatures up to -25 °C (e.g. installation in a dome shaft). The safety height of the "Oilstop V" is infinitely adjustable between 1 and 4 m. The female threads G 3/8 are suitable for Oventrop brass compression fittings 6, 8, 10 and 12 mm.

Awards "Oilstop V":



Industrial Forum Design Hanover
iF-Ecology Design Award - TOP 3



Design Award Switzerland

2 The solenoid valve "Oilstop MV" closed with current "off" is suitable for EL type of heating oil and bio heating oils with a bio proportion of up to 100%.



3 The isolating fitting, both ports couplings 6, 8, 10, 12, 15 and 18 mm is recommended according to DIN 4755 to avoid any harmful effects of galvanic and vagrant current.

4 Pressure compensation device "Olex" according to DIN EN 12514-2. After inactivation of the burner, the oil in the suction pipe between the non-return check valve at the tank and the valve at the burner pump may become trapped. If the oil in the pipework warms up, it expands and the pressure will increase. The expanding oil is absorbed by the pressure compensation device and an inadmissible pressure increase is avoided. The female threads G 3/8 are suitable for Oventrop brass compression fittings 6, 8, 10 and 12 mm.

5 The vacuum gauge is installed in the suction pipe behind the oil filter. The device serves to control the degree of contamination of the heating oil filter during burner operation. A subsequent installation is possible without problems.

6 Quick acting isolating valve, both ports with couplings 6, 8, 10, 12 and 15 mm. Also suitable for liquid gas.

7 The double change-over valve (ball type) with female thread G 3/8 is used for the connection of two storage tanks to one burner in a two pipe systems. It is suitable for fuel installations and resistant to fuels with "alternative additives" or with a bio proportion of up to 20%.

8 System illustration



1



2



3



4



5



6

Many Oventrop heating oil products with female thread G $\frac{3}{8}$ are suitable for the direct connection to copper pipes using the Oventrop brass compression fittings 6, 8, 10 and 12 mm.

Metal squeeze or cutting ring connections do not only guarantee tightness but also tensile strength.

1 The compression fittings 6, 8, 10 and 12 mm are used for suitable Oventrop heating oil products with female thread G $\frac{3}{8}$ (illustr.: 12 mm).

2 The reinforcing sleeves are used for copper pipes with a wall thickness of 1 mm.

3 The steel couplings for oil pipes according to DIN 4755 are available as straight coupling, elbow coupling and T-coupling. The couplings are equipped with a brass cutting ring and comply with the series L according to DIN 2353.

They are also suitable for compressed air, hydraulic and propane gas and resistant to bio heating oils.

4 The straight and elbow double nipples serve the connection of heating oil hoses to the burner or heating oil products. The double nipples are also resistant to bio heating oils.

5 The flexible hoses according to DIN EN ISO 6806 for heating oil installations according to DIN 4755 are suitable for heating oils with a bio proportion of up to 20% and as special model also for heating oils with a bio proportion of up to 100%.



6 The gland fittings serve the introduction of steel, copper and iron pipes into the tank.

Room climate

Hydronics

Stations
Storage cylinders
Pipes

Potable water

Oil
Solar

Smart Home
Smart Building

Subject to technical modifications without notice.

Private persons may purchase our products from their qualified installer.

Presented by:



oventrop

Oventrop GmbH & Co. KG
Paul-Oventrop-Straße 1
D-59939 Olsberg
Telefon +49 2962 82 0
Telefax +49 2962 82 400
E-Mail mail@oventrop.com
Internet www.oventrop.com