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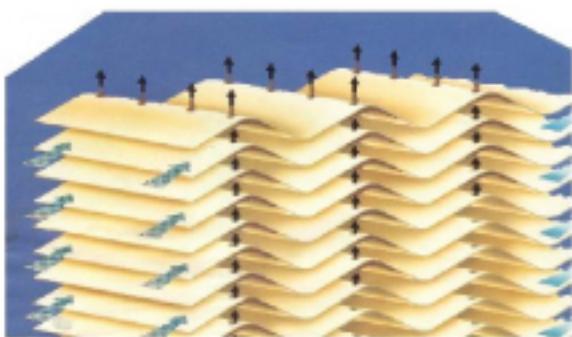
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FREYLIT OIL-WATER SEPARATOR

无动力波纹板式油水分离器





一、 FREYLIT Umwelttechnik GmbH 介绍:

FREYLIT Umwelttechnik GmbH是一家油水分离设备和洗车水回用系统的奥地利生产商。多年以来，产品出口欧洲、美国、日本、中国、东南亚和中东等国家。全世界有34个国家的代理商。FREYLIT Umwelttechnik GmbH由F. Frey Co. 创办于1983年，前身为位于Antonigasse, A1180维也纳。奥地利注册号码为FN129743Z。Franz Frey先生任总裁，1999年总部迁至奥地利维也纳北部的Hubertusgasse 10, A2201 Hagenbrunn 工业园区。

FREYLIT 设计生产油水分离器广泛用于汽油站，油类补给站，车库，机场，海港，电厂，钢厂等。我们的油水分离器严格经过奥地利和欧洲的标准测试，出水可达到5ppm以下。耐用材质的波纹板可以确保品质性能以及更长使用时间。波纹板核心使用寿命十年。

FREYLIT Umwelttechnik GmbH is an Austrian manufacturer of environmental technology systems for the treatment of waste water (oil separators) and recycling of wash water from vehicle washing operations at service stations, car washes, etc.. For many years we have been exporting our systems to countries in Europe, USA, Japan, China, SE-Asia and the Middle East. The company has distributors in over 34 countries worldwide.

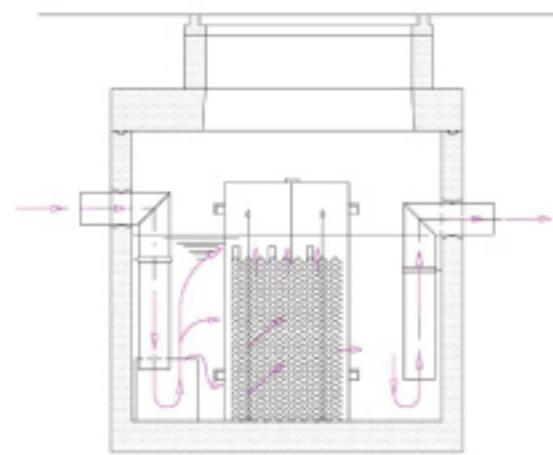
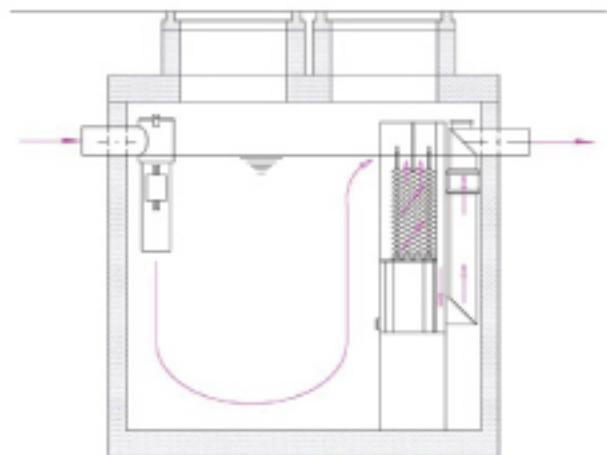
FREYLIT Umwelttechnik GmbH originated from F. Frey Co., which was founded in 1983 and was formerly located at Antonigasse, A1180 Vienna. The company is registered in the Austrian companies register, number FN129743Z, with Mr Franz Frey as President and CEO, and since 1999 has its headquarters just north of Vienna at Hubertusgasse 10, A2201 Hagenbrunn Industrial Zone, Austria.

FREYLIT designs and produces a wide range of oil separators used in petrol stations, oil depots, garages, airports, harbours, electric power plants, steel manufacturing, etc., with sizes from 3 liters/second up to 100 liters/second. Our oil separators are tested to conform with the strictest Austrian and European Norms and are guaranteed to reduce the effluent oil content down to below 5 ppm. Durable materials ensure quality performance over a very long lifetime. The coalescent plate packs at the heart of the separators are covered by a 10 year warranty period. A large number of well known oil corporations, engineering companies, and industrial clients are using Freylit oil separators. We export to many countries in Europe, USA, Japan, China, Taiwan, SE-Asia and the Middle East.



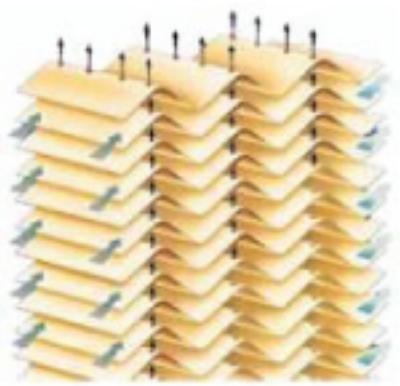


BREYLT
OIL-WATER SEPARATOR



OIL-WATER SEPARATOR

More than 5000 units in operation!
5000多个单元同时运转



COALESCENT PLATES
波纹板



PLATE PACKS
集成板块堆

CAPACITIES : from 3 litres/second to 600 litres/second
处理能力：3L/s~600L/s

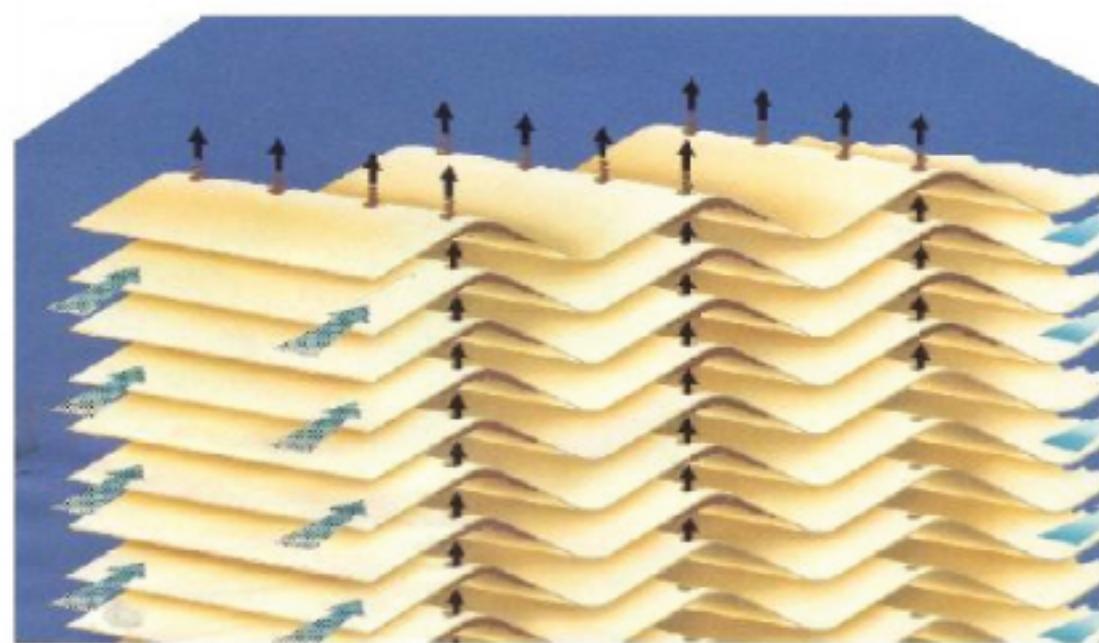


PLATE PACKS
集成板块堆



Process description of FREYLIT coalescent plate packs

分离过程:



The oily water flows through the PLATE PACK of the separator
含油污水流经板块堆分离

FREYLIT油水分离器采用亲油材料聚丙烯波纹板作为材料，波峰为6mm或12mm，因此，一个油滴要向上升6mm或12mm到下一个波纹板。

油滴接触到波纹板自然分离。由于油滴比重小，在波纹板下，则沿着波纹板上升到波峰。

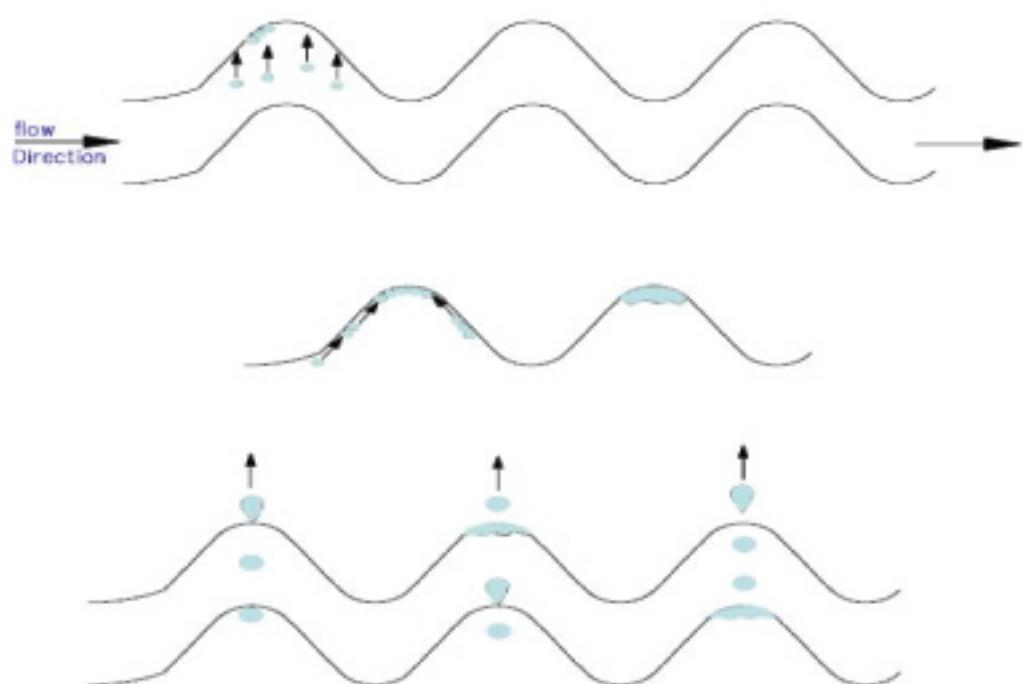
波峰顶点的钻孔孔径12mm，油聚集在波峰顶点并上升到油层。事实上由于波纹板在其波峰段是渐缩、层叠的，从而油水顺着板变速运动，这就增加了油滴的碰撞几率，使油滴集聚。油滴变大，加快了上升的速度。从而油在上层被收集。

板长590mm、260mm。

Horizontal, oleophilous, NON-ROTTABLE corrugated plates of polypropylene are used to separate the residual oil. The corrugated plates are stacked on top of each other at a distance of 6 mm (1/4") or 12 mm (1/2"), by means of cast-on spacers. Accordingly, an oil droplet only needs to move upwards by a maximum of 6 mm (1/4") or 12 mm (1/2"), before it contacts the next corrugated plate, which traps the droplet.

As soon as an oil droplet touches a corrugated plate it is separated. The droplet adheres to the underside of the corrugated plate and, on account of its specific gravity, it moves along the plate to the apex of the corrugation ridge.

Bore holes in the apices of the corrugation ridges (diameter 12 mm (1/2")) allow the oil collected in the apices of the ridges to move upward and reach the oil collection layer. Due to the fact that corrugated plates, which are tapered at the corrugation ridges, are stacked on top of each other, the oil-containing water moves along the corrugated plates at varying speed. This results in additional particle collisions (possibility to coalesce) of bigger and smaller oil droplets. The droplets become bigger, on account of these particle collisions, which accelerate their upward movement, so that they are consequently trapped by the corrugated plates. The plates have a length of 590 mm (2') or 260 mm (10").



FREYLIT分离器的优势:

FREYLIT油水分离器加速了自然分离过程，被称为“增强重力分离”。在油水混合物中，由于油的比重比水小，将上浮。FREYLIT加速该自然分离过程，并且不投加任何化学药剂。

设计和制造在奥地利，遵循严格的质量管理制度。

运行和维护成本低，无需能耗。无需更换备件。

超长工作年限，波纹板10年质量保证。

无机械制动单元，因此消除了系统的磨损。

特殊材料制成的波纹板，确保在其端工作条件和温度下板的形状和之间距离不变。这对长时间工作并保证分离效果来说是至关紧要的。

波纹板表面经特殊处理增强油滴的聚集效果。

完整的工程设计和安装技术的支持，全球运用。

FREYLIT模块系统:

FREYLIT油水分离器设计采用模块化系统以满足客户对规格和流量的要求。流量范围为3L/s到100L/s适用于加油站、停车场、汽车维修厂。大型油水分离器适用于电厂、石油码头、油库、钢铁厂、油田、环保改造工程等，其流量可达到2000L/s以上。

ADVANTAGES of FREYLIT Coalescent Plate Separators:

Freylit oil separators are also known as "Enhanced Gravity Separators" because they speed up the natural process of oil/water separation. In an oil/water mixture, oil having a lower specific gravity than water, will eventually float to the surface. Freylit oil separators use corrugated parallel coalescent plates to enhance this natural process, without the addition of chemicals.

Designed and manufactured in Austria under the strictest quality controls and performance regulation tests. Low operation cost, needs no power supply. Minimum of maintenance work needed. No spare parts, no changing of filters or coalescent medium.

Exceptionally long working life. 10 years guarantee on coalescent plates.

No mechanical moving parts, therefore eliminating wear and tear associated with other systems

Special material of coalescent plates and divider spacers on bottom of plates ensures that they will keep their shape and distance between plates in extreme working conditions and temperature ranges. This is crucial for the efficient working of the separation process over long periods of time.

Special surface treatment of coalescent plates for enhanced coalescent effect.

Full engineering, design and technical support for installation, commissioning and operation worldwide.



FREYLIT产品技术功能描述：

FREYLIT油水分离器的理论说明了油滴在油水混合物中的运行工程，数学模型为“STOKES”法则：

$$V_R = \frac{g(P_w - P_0)D_0^2}{18\eta}$$

其中：

V_R — 油滴每秒钟上升的速度 (cm/s);

g — 重力常数(980cm/s²);

η — 粘度;

P_w — 水的密度(mg/cm³);

P_o — 油的密度(mg/cm³);

D_0 — 油滴的直径(cm);

FREYLIT的油水分离器通过使油滴大量聚合从而加快上升速度，加速自然的分离过程，另外，通过使用水平平行的波纹板来缩短油滴上升的距离从而缩短分离时间。

Description and function of the FREYLIT plate pack technology :

The Theory of Enhanced Gravity Oil-Water Separation explains the behaviour of oil droplets in an oil/water mixture. The mathematical relationship that describes the separation process is Stokes' Law :

$$V_R = \frac{g(P_w - P_0)D_0^2}{18\eta}$$

Where,

V_R = rise velocity of the oil droplet in cm/sec

g = gravitational constant (980 cm/sec²)

η = viscosity of water in poise

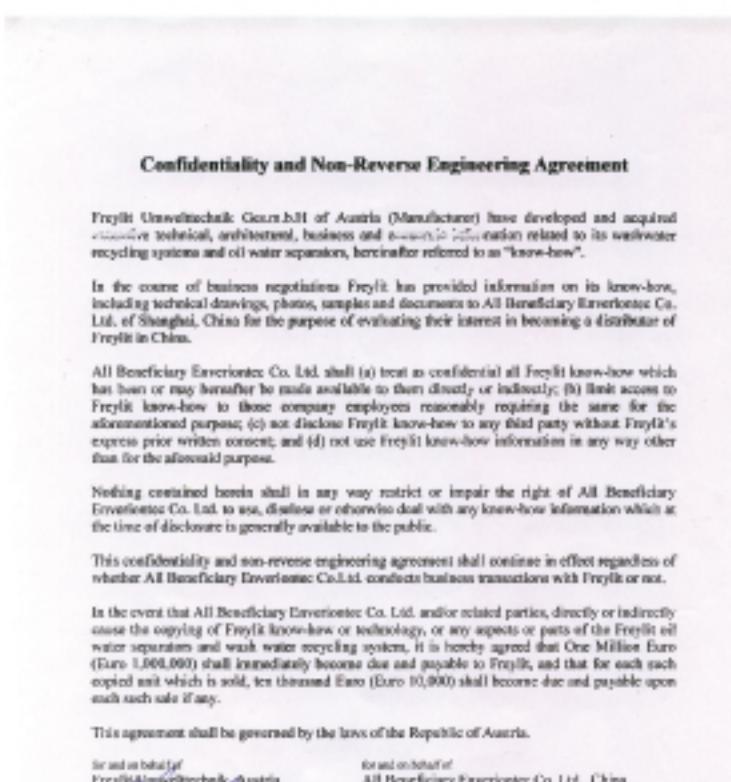
P_w = density (gm/cm³) or specific gravity of the water

P_o = density (gm/cm³) or specific gravity of the oil

D_0 = diameter of the oil droplet in cm

FREYLIT Oil Separators are designed to enhance this natural process by, a- Making oil droplets larger "coalescence" and therefore making them rise faster, and, b- Reducing the time needed for separation by reducing the distance an oil droplet must rise by using horizontal parallel coalescent plates.

授权书

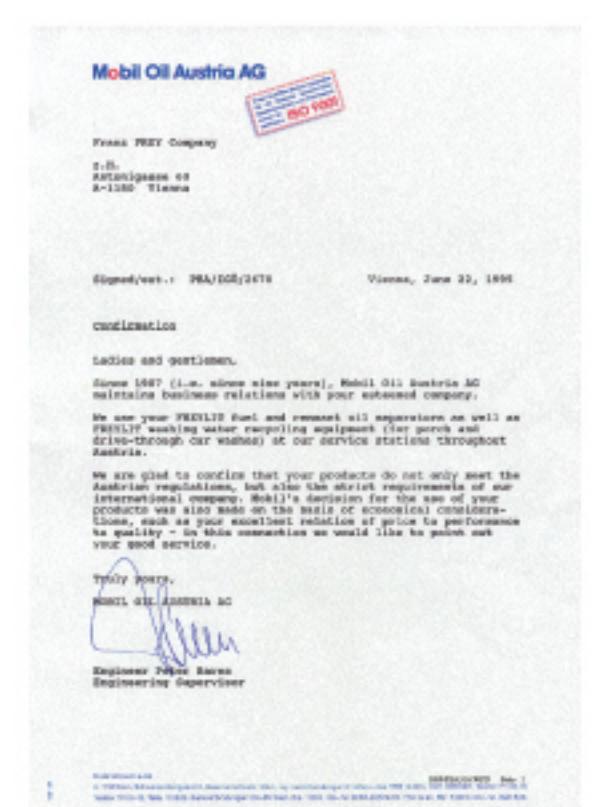
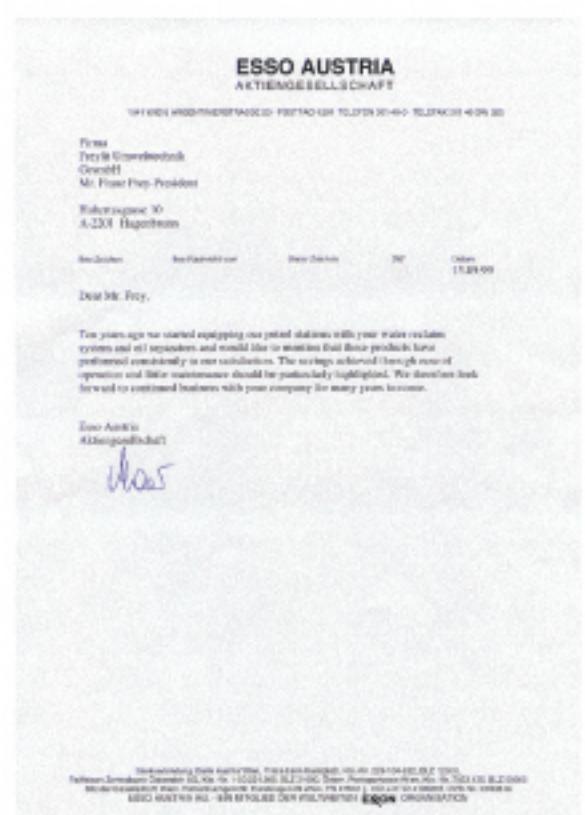


Name: Mr. Wang
Title: Managing Director
Date:



Name: Mr. Frey
Title: Managing Director
Date:

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工业油水分离器在中国应用的部分客户：
INDUSTRIAL OIL SEPARATORS Projects in China:

四川东方电力集团, 600m³/h;
Sichuan Dongfang Electric Company
中国武汉钢铁集团, 4000 m³/h
Wuhan Iron & Steel Corp. of China
连云港钢铁有限公司6000 m³/h
Lianyuang Steel Company
刘江电厂, 15 m³/h;
Liujiang Power Plant
黄石电厂, 15 m³/h;
HuangShi Power Plant
贵州南永电厂, 30 m³/h;
Guizhou Nanyong Power Plant
山东滕州电厂, 15 m³/h;
Shandong Tengzhou Power Plant
山西大唐平王电厂, 10 m³/h;
Shanxi Datang Pingwang Power Plant
海南石化, 30 m³/h;
Hainan Petrochemical Incorporation
秦皇岛海运石油终端, 100m³/h;
Qinghuangdao Marine oil terminal
大连石油公司(由北京EARTHTECH项目)
Dalian Oil Co.
上海宝钢的废水处理工程(北京首都工程研究公司项目)
Shanghai Baosteel
小松山推工程机械有限公司 1 m³/h
Komatsu Mechanical Engineering Co., Ltd
神华集团神木煤矿 10 m³/h
Shenhua Group
大庆油田 5 m³/h
Daqing Oilfield

