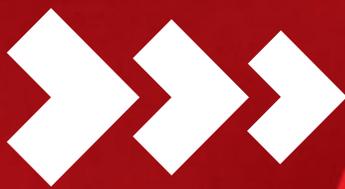


TURN WASTE TO VALUE



RUNI

DANISH ENGINEERING

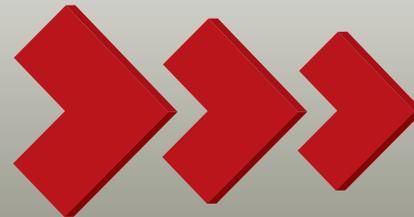


**COMPACTION & DE-WATERING
- SIMPLE AND EFFECTIVE**

Turn waste to value

Returned products, surplus materials or bi-products can be turned to value instead of ending as worthless and costly waste. As well as being plain common sense, compacting waste materials is beneficial both financially and for the environment.

- Several types of compacted waste can be sold for recycling
- Wet waste can be de-watered to a drier state so that it can be disposed of at a lower charge
- Storage space, handling and personnel resources are saved
- Lower costs and less environmental impact through transport reductions by removing excess water or air
- Product destruction preventing out of date or reject products from being sold



Compaction and de-watering

The RUNI Screw compactors compacts many types of materials quickly and effectively, for example, fish boxes made of EPS. They can also de-water materials by separating liquids from solids, for example separating water from washed plastic, or by emptying and compacting juice cartons in a single procedure.

The markets most versatile, effective and robust solution

RUNI's Screw compactor is robust and easy to use. Compaction occurs continuously, with a high degree of compaction and low energy consumption as no heat is added. As a pioneer in this market, RUNI has built up extensive knowledge and experience about this versatile and effective method of compaction – the screw compactor.

It depends on a test

With regard to enquiries about new materials, RUNI have provided solutions for a wealth of different materials. This enables us to use our unique experience to find solutions solely on the basis of material samples. If this is not the case we will offer a full-scale test on customer site.

Earn money from the compaction of EPS and other plastic foam

EPS – Expanded PolyStyrene – also known under the trade names Flamingo® or Styrofoam™ - is used in a wide range of applications, for example, insulation and transportation packaging. This lightweight material takes up a lot of space and is often expensive to dispose of. EPS and other types of plastic foam are slow biodegradable pollutants and create considerable problems in the decomposition process at the waste disposal site.

- Compacted plastic foam, such as, EPS, EPP, EPE, XPS and PUR, can be sold to produce new materials in recycled plastic
- Saves space and handling in warehouses and waste containers
- Protects the environment and saves money on collection

Eco-friendly EPS handling is an income for Norlax

NORLAX A/S in Denmark uses up to 1,000 boxes of salmon daily in its production. Previously EPS boxes filled 4 truckloads a day; today the boxes are compacted and sold for recycling. Besides the waste, savings are made in both transportation and labour costs.

'It is more eco-friendly to sell EPS for recycling instead of handing it over as waste. At the same time the investment was recouped within 2 years,' says Factory Manager Carsten Krarup.

Waste management creates profit

In 2007 the large American furniture chain, ROOMS TO GO, sold returnable waste for close to 3 million dollars. In five large distribution centres the returnable packaging was sorted into cardboard, plastic, wood and EPS. In 2007 they handled 861 tons of EPS, which was automatically processed in RUNI Silo systems on a conveyor belt, shredder and silo. This automatically fed several RUNI SK370 Screw compactors for up to 20 hours a day.

'With RUNI's silo system we can compact the EPS in a continuous manufacturing process without having someone stand and feed the compactor,' says Nick MacNichol, Senior Industrial Engineer.



Norlax collects well over 5.5 tonnes of EPS in 14 days



Rooms to Go's fully automatic silo plant has been tailored to the company's flow of waste



Compacted blocks stacked and ready for re-sale

The retail trade and smaller industrial companies can also save money



EPS boxes take up a lot of space in the warehouse and during transportation



The compact SK120 is simple to use



Compacted EPS blocks take up less space in the warehouse and can be sold for recycling

RUNI has developed a small compactor for EPS, that suits the retail trade and smaller industrial companies. Used packaging and packaging materials made from EPS in the retail and industrial sectors take up masses of space and require frequent collection. EPS cannot be compacted in ordinary waste compactors. RUNI screw compactor solves both the space and waste problem.

- **Simple and easy to use**
- **Solves waste problems effectively, saves space, handling and collection**
- **Compacted EPS materials can be sold for recycling to benefit both the environment and the company's finances**
- **Even smaller companies experience a quick return on investment**

Save space and money

CHANTRY DIGITAL is an English retailer within consumer electronics and domestic appliances. The main department uses a RUNI SK120 for EPS packaging. 'It has meant an enormous saving, both with regard to space and finances. The greatest advantage is that we now can keep the area clean and tidy. Compacted EPS can be sold for recycling, so we now have an income instead of an expense,' explains Antony Blacker from Chantry Digital.

Recouped in less than 12 months

PREMIER PATTERNS and Castings Limited in England produce EPS casts. Dust and off-cuts are compacted with the help of a RUNI SK120 Screw compactor. 'Previously we filled a waste container three times a week. Now it takes three months to fill one container, and above all we can sell it. It is a great saving, and the investment was recouped in less than 12 months,' says Richard Irwin from Premier Patterns.

Compacting as a disposal process

RUNI can de-water and compact a wide range of materials. Whether a biproduct of industrial production, a result of over production, expired material or material that for any other reason needs to be disposed of, RUNI can carry out the destruction, emptying and compacting of liquid storage containers in a single procedure.

The equipment can also compact dust from various extraction systems, and render it easy to handle. In most cases the new material flow produced can be recycled as a feed material (biogas, combustion or other types of energy) or disposed of in a more cost effective manner.

- **Compacted waste takes up less space in your warehouse and in waste containers**
- **PET bottles, aluminium cans, liquid soap bottles and other containers are compacted and sold for recycling**
- **Water, beer, juice and other liquids are collected and can be drained**
- **Textile dust, mineral wool and other airborne materials are compacted and easy to handle**
- **Containers for branded goods are destroyed so they cannot be re-sold**

Disposal leads to recycling

NEN-PRODUKTER AS in Norway produces juice and smoothies, which are bottled in various types of tetra cartons. Every day thousands of units must be disposed of as a result of normal production wastage.

‘With our RUNI compactor so much liquid is removed during compaction that the waste can be used for recycling. As opposed to waste disposal recycled materials are removed without charge,’ says Jørgen Hylin.

Dust proof solution for an extraction system

Dan-Web in Århus uses a RUNI SK240 to compact start up waste, edge trimmings and dust from the production of airlaid textiles. The production dust is collected in an air filter and blown into an air separation unit before it leaves the ventilation system. ‘The RUNI has really been a breakthrough. It is totally dust proof, so the room is no longer filled with dust. Compaction also means that we save money on transporting the waste,’ explains Jes Larsen from Dan-Web.



Screw compactor separates packaging and contents



Liquid is pressed out during compaction



After being emptied and compacted the waste can be sold for recycling – this picture shows compacted juice cartons

Compaction as a drying process – separating liquid from solids

There are several industrial washing processes, where RUNI can press water out of solid material, for example, by drying PE film or drying rejects from the production of recycled paper.

The RUNI compactors are built to operate 24/7 and we supply customised solutions, which can be incorporated into a fully automatic production plant.

- When drying washed PE film, a RUNI screw compactor is more effective than centrifugation resulting in lower energy consumption in the heat drying process
- Dried and compacted waste can be sold for recycling, be used for making energy or disposed of for a lower fee
- Make water treatment more efficient during production and avoid paying for transportation of the water and fees

De-watered rejects are cheaper to dispose of

SKJERN PAPIR A/S in Denmark produces cardboard from recycled paper. In the first preliminary sorting the paper material is separated from large, non water-soluble materials, which in the past were transported to a landfill site. This very wet reject was expensive both in terms of transportation and disposal, but after compaction it can now be disposed of as combustible waste for a significantly lower fee. 'At the same time we avoid transporting water needlessly. The water is now recycled in a centrifuge instead,' explains Plant Manager Finn Knudsen from Skjern Papir.

Energy efficient drying with RUNI screw compactor

FOLLDAL GJENVINNING is one of Scandinavia's largest recyclers of plastic film and they attach great importance to energy efficiency. 'We use RUNI in our washing plant instead of large energy intensive drying machines and can remove a lot more water before drying, so we achieve a very low remaining moisture level below 10 %. I would say that we save between 100 and 150 kWh an hour per line', says Frode Brendryen, Production Manager.



RUNI empties PET bottles and dries PE film with very low energy consumption



RUNI screw compactor works steadily even in aggressive environments – here rejects at a paper mill are shown



The RUNI is an energy efficient way to dry PE in the production of recycled plastic

RUNI SK120



- Save money by reducing the collection of waste
- Save space and handling in the warehouse
- Takes up only a small amount of space – can even be placed under the pallet rack

RUNI SK120 is the perfect solution for environmentally conscious supermarkets, installation businesses, fish companies as well as companies that want to minimise their waste costs. A slimline compactor for companies with less, but continuous amounts of EPS, which can be dealt with by manual feeding.

RUNI SK240



- Save space and handling by disposing of waste quickly and effectively
- Save energy – no heat is added to the process
- Airtight – well suited to compacting dust
- Various configurations for a wide range of materials

RUNI SK240 is for larger needs. Various types of hoppers can be installed depending on materials and internal logistics. Customised solutions are available on request; these include compactors for dust, aluminium cans and PET bottles.

RUNI SK370



- Larger screw, greater power, greater capacity
- Save energy – no heat is added to the process
- Various configurations for a wide range of materials
- HEAVY DUTY Pre-crusher can be installed for particularly powerful and dense materials

RUNI SK370 is a large, heavy duty and versatile machine for large amounts and industrial uses, and is also ideal for those tasks that cause other machines to give up. RUNI SK370 can be installed with a wide range of equipment: various hoppers for manual and automatic feeding, conveyor belts, silo systems, perforated matrixes for de-watering and separating etc.

RUNI Silo system



- Compaction of up to 1,000 kg EPS per hour
- Automation of the entire process from sorting to the compacted block
- Buffer capacity in the silo for peaks in production
- Shredder and silo / compactor system can be placed separately within your location

RUNI Silo systems are designed to compact large amounts of material by using a silo as a buffer for capacity loads. The free standing shredder has a significantly greater capacity than the compactor thus saving on labour and time.

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DANISH ENGINEERING

Danish Engineering

RUNI A/S is a Danish manufacturer of screw compactors with a long tradition of environmental technology, machine production and forging. RUNI was founded in 1973 by Ruth and Niels Dysager, and is continued today by their son, Torben Dysager.

RUNI's machines are used to increase the value of several different materials, either by making them suitable as recycled material which can be sold, or by minimising transportation costs, disposal or energy consumption.

RUNI develops its own machines by using its years of experience. This continued development constantly leads to improved results and new fields of application.

Many solutions are especially adapted to the customer's needs and their specific purpose. This is possible because we build each individual machine ourselves.

RUNI's machines are built from durable materials for hard work. They are reliable, dependable and easy to use.

RUNI is a global business. Our experience and know-how is unbeatable in relation to the world market. We have a leading product when it comes to operation and quality. In some of our export markets we have professional and experienced distributors. In all other markets RUNI sells directly to companies in the industrial, trade and retail sectors.

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