

# How is your heat recovery business?

Our tumble dryers are designed for optimal efficiency. Tumble drying in general still accounts for a major part of a laundry's total energy consumption. That's why we have developed HRP. With HRP, our tumble dryers are even more efficient—up to 25 percent more efficient. This translates into substantial savings during the lifetime of the machine.

## What is HRP?

HRP is a compact, add-on unit that can be mounted directly on the back of the tumble dryer. It is based on an optimised heat exchange principle that uses the warm exhaust air produced by the tumble dryer to "pre-heat" cold incoming air.

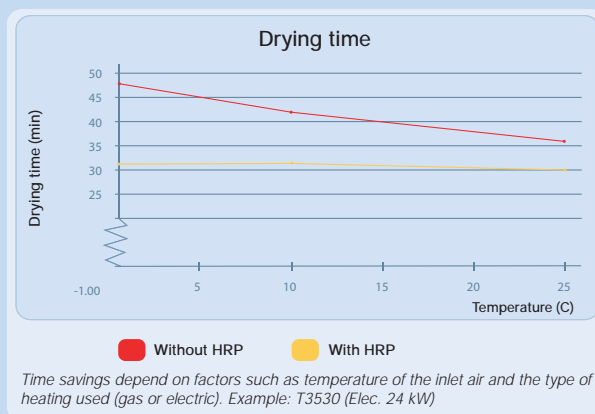
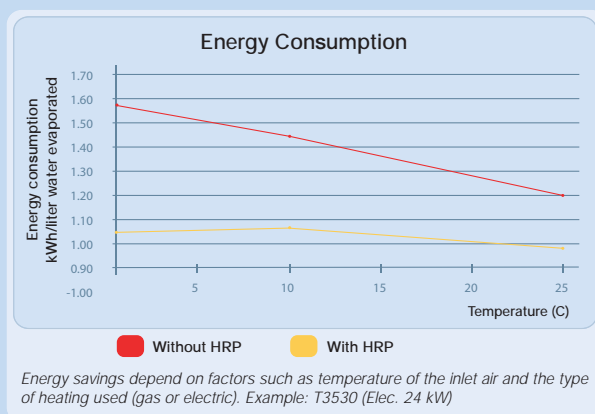
HRP is an ideal solution for most laundry operations—particularly if you have electrically heated machines installed. What's more, HRP can be installed with air intake from either the laundry room or from outside—the common solution. Using outside air is recommended as it optimises energy and cost savings.

## An energy saver

HRP is a smart investment that quickly pays for itself—particularly in regions with cool temperatures for most of the year. The colder the temperature of your current air intake, the greater the energy savings with HRP. In general HRP is profitable when the incoming air is 24° C or cooler.

## A time saver

Drying cycle time is reduced because HRP heats the air before it enters the tumble dryer. Quite simply, it takes less time for the dryer to heat the air at the beginning of the drying cycle. In fact, the temperature of the incoming air is increased by at least 20° C before entering the heating chamber of the machine.



ELS reserves the right to make modifications to equipment specifications consistent with ongoing product development. Model availability varies by country. Please confirm specifications and availability with local ELS representative or headquarters.

# Total laundry solutions

Electrolux Laundry Systems, part of the Electrolux Group, is a leading supplier of professional laundry solutions worldwide. With a comprehensive service offering and a complete range of equipment, Electrolux Laundry Systems tailor solutions to the specific needs of individual laundries — from the laundries of apartment houses, hotels and health care institutions to coin-operated laundrettes and commercial laundry operations.

The company has three manufacturing entities in Denmark, France and Sweden. The headquarters is located in Denmark and the equipment is sold under the brand name of Electrolux.

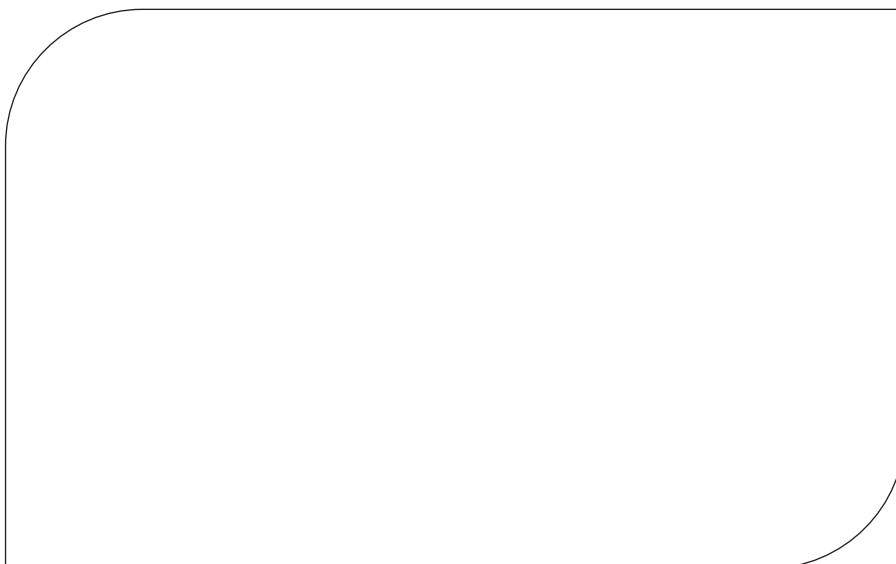
Backed by long experience and deep process know-how, the equipment is designed and built to high quality and safety standards and with respect for the environment. That's why Electrolux Laundry Systems is certified according to ISO 9001 and ISO 14001 standards.

Customers around the world are served by 23 national sales companies and a network of 120 importers.

 **The Electrolux Group.** *The world's No.1 choice.*

*The Electrolux Group is the world's largest producer of powered appliances for kitchen, cleaning and outdoor use. More than 55 million Electrolux Group products (such as refrigerators, cookers, washing machines, vacuum cleaners, chain saws and lawn mowers) are sold each year to a value of approx. USD 14 billion in more than 150 countries around the world.*

Your local Electrolux Laundry Systems office:



 **Electrolux**

**ELECTROLUX LAUNDRY SYSTEMS**

Electrolux Laundry Systems Headquarters: Lundtoftegaardsvej 93A, DK-2800 Lyngby, Denmark.

Telephone +45 45 26 48 00. Telefax +45 45 26 48 01.

Internet: [www.electrolux.com/laundrysystems](http://www.electrolux.com/laundrysystems) E-mail: [els.info@electrolux.com](mailto:els.info@electrolux.com)



# Heat Recovery Pipes

 **Electrolux**

ELECTROLUX LAUNDRY SYSTEMS

# An energy-saving breakthrough

Introducing the Heat Recovery Pipes (HRP) unit—an energy recycling system for our tumble dryers that will put you in the heat recovery business. Extensive testing in the laboratory and in the field proves that HRP reduces energy consumption and drying time. Imagine the savings. In fact, HRP pays for itself within two to three years.

## How does it work?

The Heat Recovery Pipes (HRP) unit consists primarily of a condenser module that is connected to the air intake and an evaporator module that is connected to the air exhaust. These two modules are connected by a closed system of copper pipes, containing an environmentally friendly refrigerant. As warm exhaust air passes through the evapora-

tor module, the temperature of the refrigerant in the heat pipes rises and evaporates into the condenser module. Cold incoming air is, in turn, warmed by the heat of the pipes in the condenser module. This heat transfer cools the refrigerant, which condenses inside the heat pipes and runs down into the evaporator module. The cycle repeats itself.

Cold incoming air is warmed in the condenser module

Special supply air connection for inlet air from the outside

Partition between condenser and evaporator modules prevents lint particles in exhaust air from mixing with incoming air—eliminating a potential fire hazard

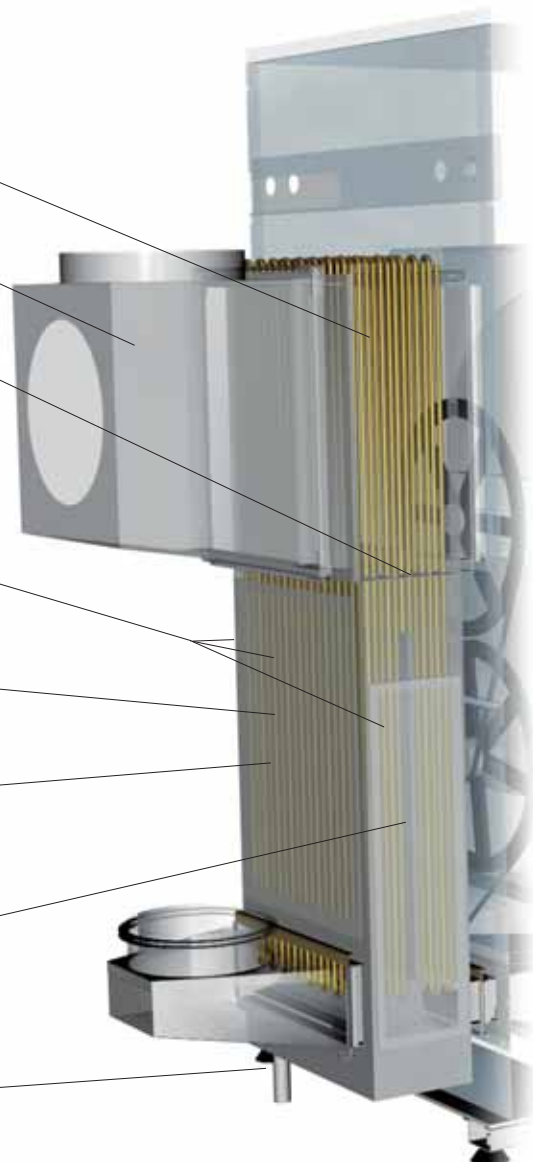
Service doors provide easy access to the heat pipes for periodic cleaning

All plate parts are made of corrosion-proof material to ensure a long service life

The unit is self-contained and does not require utility connections

The design of the evaporator module ensures that warm exhaust air has maximal contact with the heat pipes—maximising the energy recovered

Drain for evacuation of condensate water



# Safe, trouble-free operation

## Simple maintenance and service

HRP is a compact, self-contained unit that requires minimal space and no utility connection. Installation is quick and simple—even when upgrading your existing machines. HRP should be installed using air intake from the outside to ensure maximum energy savings; this solution also eliminates draughts in the laundry room which improves the working environment. HRP can also be installed with air intake from the laundry room. This type of installation, however, uses air that has already been warmed by the laundry's central-heating or air conditioning systems.

### Easy to clean

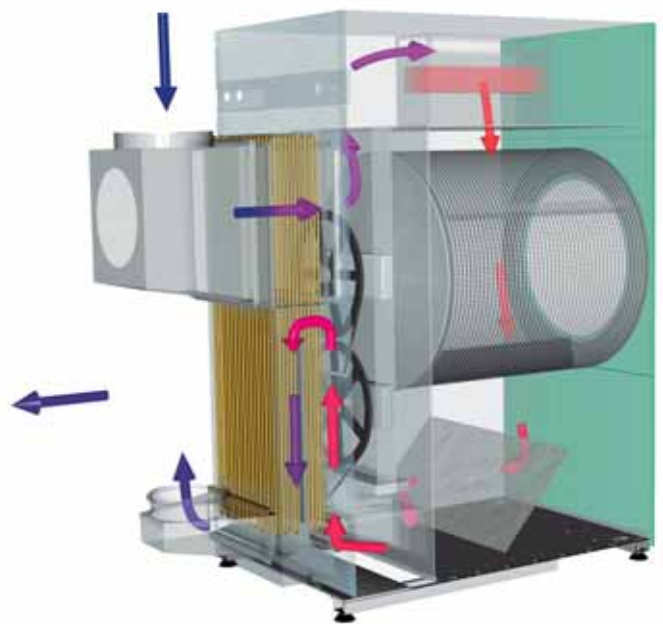
Because HRP is connected to a drain for removal of condensed water, lint particles go down the drain. Cleaning and maintenance requirements are minimal. Hosing down the heat pipes two times a year is all that's needed. What's more, the pipes are easily accessible through service doors mounted on the back and sides of the unit.

### Guaranteed access to the tumble dryer

In addition, HRP does not hinder access to the tumble dryer itself, since an inspection door on the dryer ensures easy access to the rear of the machine.

### A safe system

A partition between the evaporator module and the condenser module prevents moist lint particles in the exhaust air from mixing with the incoming air. There is no risk of lint collecting on the heating elements—which can pose a fire hazard on traditional heat exchange systems.



# Product selection guide

## Heat Recovery Pipes

Tumble dryer model	T3190	TT300/T3290	TT500/T3530	TT750/T3650
<b>Standard product specifications</b>				
Capacity (Drum volume in liters)	190	290	530	650
Airflow (Radial = R/Axial = A)	A	R	R	R
Width x depth x height (mm)	720x745x1110	710x1120x1880	960x1180x1995	960x1370x1995
<b>HRP model name</b>				
	HRP190	HRP290	HRP530	HRP530
Dimensions in mm (W x D x H)	635x525x765	488x645x1407	488x645x1407	488x645x1407
Installation dimensions HRP + TD depth (mm)	1475	1805	1865	2055
Weight (kg)	34	60	60	60
<b>Consumption data*</b>				
Temperature of inlet air	-1 +10 +24	-1 +10 +24	-1 +10 +24	-1 +10 +24
Electrical heating with standard effect (kW)	8	18	30	36
<b>Without HRP</b>				
Energy consumption (kWh/liters H <sub>2</sub> O evap.)	1.37 1.18 1.05	1.44 1.24 1.13	1.61 1.44 1.26	1.49 1.38 1.23
Drying time (minutes)	41 34 30	36 31 28	38 35 31	44 41 37
<b>With HRP</b>				
Energy consumption (kWh/liters H <sub>2</sub> O evap.)	1.02 0.96 0.95	1.1 1.06 1.02	1.04 1.04 0.98	1.06 1.09 1.01
Drying time (minutes)	30 28 28	28 27 26	26 26 24	32 32 31
Savings in energy (percent)	26 19 9	24 15 10	35 28 22	29 21 18
Savings in drying time (percent)	27 18 7	22 13 7	32 26 23	27 22 16
Electrical heating with reduced effect (kW)	6	13.5	24	30
<b>Without HRP</b>				
Energy consumption (kWh/liters H <sub>2</sub> O evap.)	2.48 1.2 1.04	1.36 1.19 1.06	1.58 1.43 1.2	1.45 1.32 1.19
Drying time (minutes)	75 45 39	45 39 35	47 43 36	51 46 43
<b>With HRP</b>				
Energy consumption (kWh/liters H <sub>2</sub> O evap.)	0.99 0.97 0.94	1.05 0.99 0.97	1.04 1.05 0.99	1.05 1.04 1
Drying time (minutes)	38 45 39	35 33 32	32 32 30	38 38 37
Savings in energy (percent)	60 19 10	23 17 8	34 27 18	28 21 16
Savings in drying time (percent)	49 16 8	22 15 9	32 26 17	25 17 14
Gas heating with standard effect (kW)		21	42	42
<b>Without HRP</b>				
Energy consumption (kWh/liters H <sub>2</sub> O evap.)		1.45 1.28 1.2	1.42 1.39 1.31	1.51 1.48 1.27
Drying time (minutes)		29 26 25	23 23 22	26 25 23
<b>With HRP</b>				
Energy consumption (kWh/liters H <sub>2</sub> O evap.)		1.22 1.15 1.13	1.18 1.18 1.14	1.18 1.2 1.1
Drying time (minutes)		25 24 24	20 20 20	28 28 28
Savings in energy (percent)		16 10 6	17 15 13	22 19 13
Savings in drying time (percent)		14 8 4	13 13 9	-8 -12 -22
<b>Included in the HRP kit</b>				
Heat Recovery Pipes unit including evaporator and condenser modules, three plates enclosing the rear side of the machine, sealing strips, connecting guides and corner connections, exhaust connection and supply air connection.				

\* At rated capacity, 100% cotton load at 50%, initial moisture dried to 0%.

Tumble dryer model	T3190	TT300/T3290	TT500/T3530	TT750/T3650
Energy requirement per drying cycle without HRP	3.45 kWh	8.37 kWh	16.56 kWh	23.46 kWh
Energy consumption per year without HRP	11.040 kWh	26.784 kWh	52.922 kWh	75.072 kWh
Energy input reduction with HRP	28%	15%	28%	21%
Energy savings per year	3091kWh	4017 kWh	14.838 kWh	15.705 kWh
Savings in one year	€ 402	€ 522	€ 1929	€ 2050

The above examples are based on an average inlet temperature of 10° C and 3200 loads per year.\*

Cost for electricity is estimated at €0.13 per kWh.

\* 40 weeks x 5 days x 8 hours x 2 loads per hour = 3200 loads per year.

\* At rated capacity, 100% cotton load at 50%, initial moisture dried to 0%.