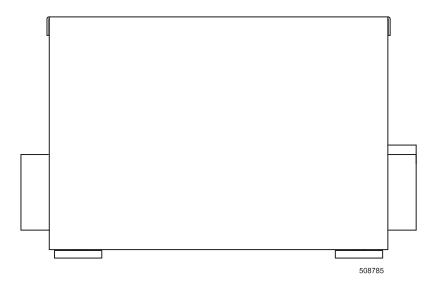
# **WATER RECUPERATION**

# WATER RECUPERATION FOR WASHING MACHINE WITH ONE DRAIN VALVE



### ORIGINAL INSTALLATION AND MAINTENANCE MANUAL

SP549137

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### 2. IMPORTANT SAFETY INSTRUCTIONS



**WARNING - SAVE THESE INSTRUCTIONS FOR LATER USE.** 

Failure to comply with the instructions may lead to incorrect use of the appliance, and may result in risk of fire, bodily injuries or death and/or damage to the laundry and/or the appliance.



WARNING - read the IMPORTANT SAFETY INSTRUCTIONS in this manual carefully before operating the appliance. Improper use of the appliance may cause risk of fire, electrical shock or serious body injuries or death as well as serious damage to the appliance.

- This English version is the original. Without this version, the instructions are incomplete.
- Before installation, operation and maintenance of the machine read carefully the complete instructions,
   i.e. "Installation, maintenance and user's manual", "Programming manual" and "Spare parts manual".
   The Programming manual and Spare parts manual are not delivered with a machine by default. You shall ask the supplier / manufacturer to obtain Programming manual and Spare parts manual.
- Follow the instruction written in manuals and keep the manuals in a proper place by the machine for later use.
- If any problems or failures occur which you do not understand, immediately contact your dealer, serviceman or manufacturer.
- Follow all basic and valid safety instructions and laws. Do not bypass the instructions stated in the instruction manual, and warnings on the labels. The labels must stay on the machine and they must be legible.
- The device must be connected to the power and ground supply according to the Installation Manual and in compliance with the local standards, and done by a person with proper authorization.
- The supplier or manufacturer must approve any changes concerning the installation that are not described in this Installation Manual. Otherwise, the supplier and manufacturer are not responsible for potential injuries to operators or for any damages. Interventions into the device execution or functions are not allowed, and the manufacturer refuses any responsibility in such cases.
- Define the dangerous areas in the laundry room and obstruct an admission to them during machine's operating.
- Operation of the device with malfunctions, missing parts or open covers is not allowed.
- Make sure people can not reach any limbs into the drain outlets.
- Do not store flammable materials around the device.
- Keep the top of the device clean, without the presence of flammable materials. Do not wash or spray
  the device with running water.
- Regularly once a three months check the proper function of ground.
- Disconnect the power supply to the washer or device before doing any interventions to the device.
- Do not repair when the device is in operation, disconnect the washing machine for repair or maintenance.
   Do not repair or replace any part of the water recycling system, or attempt any servicing unless specifically recommended in the maintenance instructions. All other servicing should be referred to a qualified service person.
- The instructions and warnings described in this manual do not include all conditions and situations which may occur during the installation, maintain or operate of your device. They must be generally understood. Caution and care are factors which are not included in the design of this device and all persons who install, operate or maintain the machine must be qualified and familiar with the operating instructions.

## INSTALLATION AND SERVICE CAN BE DONE ONLY BY A SERVICE ORGANIZATION WITH PROPER AUTHORIZATION.

#### 2.1. DURING TRANSPORTATION AND STORAGE

If the customer provides transportation or storage, it is necessary to follow the manufacturer's instructions concerning transportation, handling and storage. In this case the manufacturer is not responsible for any damage of the device during transportation. The device is packed in a double layered cardboard box before transport. Instructions concerning transportation, handling and storage:

- When stored in a free area the device must be protected against mechanical damage and weather condition effects.
- The device must be stored with the topside upward and may not be placed on its side.
- No more than 4 recycling systems may be piled up on top of each other for safety reasons.
- The maximum weight that may be piled on top of a recycling system is 50 kg / 110 lbs.
- Avoid severe climatic conditions and excessive humidity. When the temperature changes and this causes damp, you must avoid water under and around the machine and also on his covers.
- Do not spray water directly on the device.

## 3. TECHNICAL INFORMATION

DIMENSIONS			
PACKING DIMENSIONS:			
Width:	500 mm / 19,7"		
Depth:	400 mm / 15,7"		
Height:	300 mm / 11,8"		
DEVICE DIMENSIONS:			
Width:	370 mm / 14,6"		
Depth:	365 mm / 14,4"		
Height:	270 mm / 10,6"		
Minimum distance between wall and washer	900 mm / 35,4"		
WEIGHT			
Net	14 kg / 31 lbs.		
Gross	16 kg / 35 lbs.		
DEVICE EXECUTION			
Recycling box:	Stainless steel / Galvanized steel		
ELETRICA	AL DATA		
Electrical system of the device:	1x 208 – 240V AC 50/60Hz		
Permitted deviation of voltage:	± 10% of nominal voltage		
Permitted deviation of frequency:	±1% Hz		
CONNECTION			
WATER CONNECTION:			
Water inlet:	75 mm / 2,95"		
Maximal water temperature:	90°C / 194°F		
Average flow rate of one valve:	180 l/min		
CONNECTION OF WATER DRAINAGE:			
Water outlets:	76.2 mm / 3"		
WORKING CONDITIONS			
Ambient temperature	From + 5 ° C (41°F) to + 45 °C (113°F)		
Relative humidity	30 % - 90 % without condensation		
<u> </u>	nh 2		

Tab.3

### 4. DEVICE INSTALLATION

#### 4.1. SPACE REQUIREMENTS

#### 4.1.1. REQUIRED DEVICE WORKING CONDITIONS

The device is not designed to be placed in an environment where it can come into contact with spraying water. Do not install the device where it can be subject to environmental conditions or extreme humidity.

#### 4.1.2. REQUIRED INSTALLATION DIMENSIONS

If the requirements in respect to installation dimensions are not met, the manufacturer can not be held responsible for problems in connection with accessibility.

Leave at least a 0,9 m / 35,4" free space between the rear panel of the washer and the wall. Above the device, there must be free space for the maintenance access.

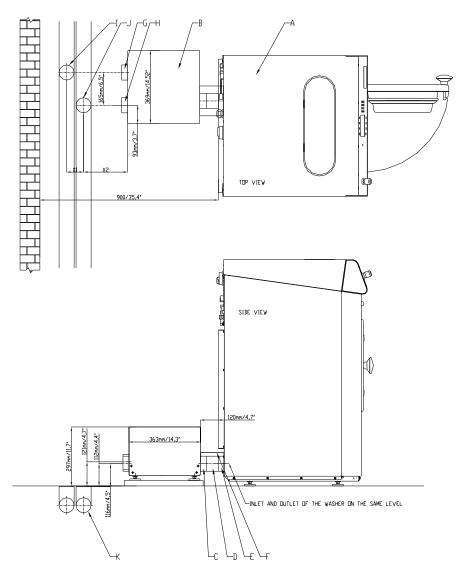


Fig.4.1.2. Required installation dimensions Indexes on figure above:

- A. Washer
- B. Recycling system
- C. Inlet of recycling system
- D. Drain hose
- E. Outlet of the washer
- F. Protection plate
- X1: Minimum distance of 120 mm / 4,7"

- G. Outlet to sewage
- H. Outlet to recycling tank
- I. Drain to sewer
- J. Drain to recycling tank
- K. Drain pipe
- L. Wall

7.1. William and anotarioo of 120 mility 1,7

X2: Distance between drain channels or pipes must be determined by the installer of the drain system

#### 4.2. DEVICE INSTALLATION

#### 4.2.1. UNPACKING

After unpacking, check if the device hasn't been damaged and if all the accessories are included.

#### 4.2.2. POSITIONING THE DEVICE

The water recycling system has to be placed in such a way that the centerline of the outlet of the washing machine coincides with the centerline of the inlet of the water recycling device, as shown in figure above. The manufacturer is not responsible for consequences caused by a wrong installation.

#### 4.2.2.1. HEIGHT ALIGNMENT OF THE WATER RECYCLING SYSTEM

Put two retaining clips over the rubber hose and place the rubber hose over the outlet of the washer and the inlet of the recycling system.

You can position the water recycling system in several ways depending on the type of washing machine where the water recycling system has to be connected to. The first way is to position the machine only on his 4 adjustable rubber feet on the ground or on an elevation. The second way is to fasten the device directly on the ground or on an elevation without the rubber feet. In table 4.2.2.1, the manufacturer gives the way of installation for all types of washers. The height mentioned in the table is shown in the figure under the table.

WASHE	RS	HEIGHT	INSTALLATION	ELEVATION
	7 kg / 15 lb	106 / 4.17		26 / 1.02
Freestanding	8 kg / 18 lb 11 kg / 25 lb 14 kg / 30 lb	112 / 4.40		32 / 1.25
	18 kg / 40 lb 24 kg / 55 lb 28 kg / 65 lb	132,5 / 5.21	Place the recycling system with the rubber	52,5 / 2.06
	8 kg / 18 lb	88 / 3.46	feet on a elevation	8 / 0.31
Rigid-mount	11 kg / 25 lb 14 kg / 30 lb	98 / 3.85		18 / 0.7
	18 kg / 40 lb 24 kg / 55 lb 28 kg / 65 lb	130 / 5.12		50 / 1.97

Tab.4.2.2.1. (dimensions stated in mm / inches)

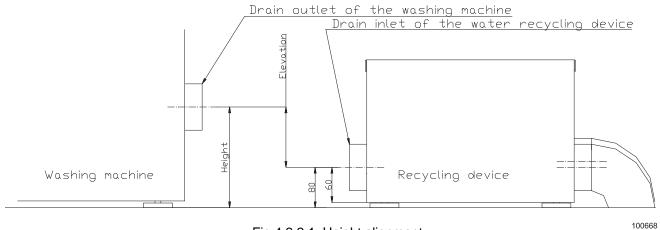


Fig.4.2.2.1. Height alignment

#### 4.2.2.2. INSTALLATION ON RUBBER FEET

# THE RECYCLING SYSTEM WILL BE FIRMLY POSITIONED TO THE FLOOR OR ELEVATION AND MUST RELIABLY REST IN ALL FOUR FEET OF THE DEVICE AND MUST BE PLACED WATER - LEVEL!

In order to adjust the rubber feet:

- Loosen the locknut above the rubber foot
- Screw or unscrew the foot to the desired position
- Tighten the locknut

#### 4.2.2.3. MECHANICAL COUPLING BETWEEN WASHER AND RECYCLING SYSTEM

- Unscrew the bolts that fasten the plastic drain outlet of the washer.
- Place the protection plate over the drain outlet of the washer. And fasten it to the frame of the washing machine with the bolts that you have just unscrewed.
- Fasten the other side of the protection plate to the side plate of the recycling system with two M6 bolts and washers.
- Finally tighten the hose clips, which are placed over the rubber hose on the outlet of the washing machine and the inlet of the device.
- The position of the inlets and outlet with the dimensions for the water recycle connection are specified in the installation, maintenance and user's manual - see fig. 1, table 3.

#### 4.3. ELECTRICAL INSTALLATION



AUTHORIZED WORKERS WITH A VALID QUALIFICATION IN ACCORDANCE WITH VALID LOCAL STANDARDS MUST EXECUTE THE ELECTRICAL CONNECTION AND EARTHING OF THE DEVICE.

The water recycling system has been designed for connecting to the electrical network of the washer.

#### 4.3.1. CONNECTING THE SUPPLY CABLE



DISCONNECT THE WASHING MACHINE POWER BEFORE INSTALLATION.
THE INLET TERMINALS ARE UNDER CURRENT EVEN WHEN THE MAIN SWITCH IS OFF.

To carry out the connection, use the cable with copper wires which was supplied to you with the product  $(3 \times 0.75 \text{ mm}^2)$  and is already connected to the coils of the draining valves in the recycle box. Procedure:

- 1. Open the upper cover of the washing machine.
- 2. At the back of the machine, fully perforate the partially perforated opening situated in low rear cover see fig. 4.4.2. Fit a cable bushing (provided with the machine) into the opening.
- 3. Pull the recycle box cable into the machine through the above specified bushing, situated in the lower part of the machine, and connect in accordance with the wiring diagram:
  - brown conductor onto the R connector pin 2
  - blue conductor onto the A2 terminal of the CFI contactor or onto the A2 terminal of the CHT contactor based on the machine version
  - green/yellow conductor onto the PE terminal of the equipment panel
- 4. Use cable ties to tie the cable to the existing cable assemblies.
- 5. Interconnect the R1 DL13 terminals using the supplied orange conductor.

#### Connecting the recycled water inlet valve:

- disconnect the conductors from the inlet valve(s) I5 or I7 based on the machine configuration.
- use the supplied connectors and connect the cable for control of the recycled water inlet valve (3x0.75mm²) onto these conductors.

blue - grey brown - white no. 5(7) green/yellow - PE terminal

- at the back of the machine, fully perforate the partially perforated opening (pos.1) in the rear cover see fig. 4.4.1. Fit a cable bushing (provided with the machine) into the opening.
- pull the cable through this bushing situated in the upper part of the rear cover.
- connect the coil for control of the recycled water inlet valve (it is not supplied with the machine; operating voltage 208-240V 50/60Hz)
- Secure the cable in a suitable manner so that it is protected against being pulled out of the machine or inlet valve.

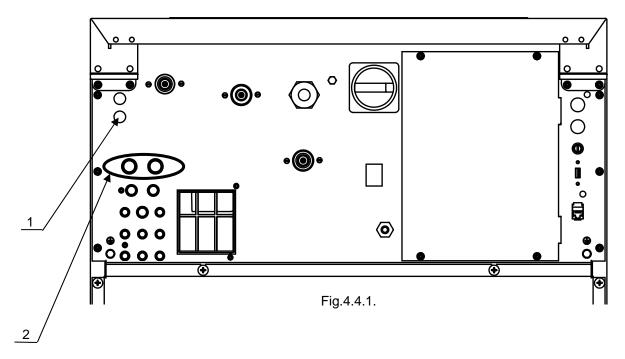
#### 4.4. CONNECTION OF WATER SUPPLIES

#### 4.4.1. INTAKE OF RECYCLED WATER



DISCONNECT THE WASHING MACHINE POWER BEFORE INSTALLATION.

THE INLET TERMINALS ARE UNDER CURRENT EVEN WHEN THE MAIN SWITCH IS OFF.



- 1 Inlet of cable for control of the recycled water valve (pump)
- 2 Inlet of water from the recycle (outside diameter 19mm)
  - Drill out the protective screens of the water inlet from the recycle (pos. 2) utilizing a drilling bit of 15mm diameter. We do not recommend piercing the screens open it could lead to blockage of the water channel.

Inlet of water from the recycle into the machine - electrical connection:

- Connect the control of your recycle valve or recycle pump onto the conductor of "our" inlet valve (I5) or (I7). By doing so, you disconnect the valve in question from the standard function.

THE MANUFACTURER WAIVES ALL RESPONSIBILITY FOR MALFUNCTION OF THE WASHING MACHINE IN CASE THAT A DIFFERENT VALVE THAN THE SPECIFIED "15" OR "17" IS USED AS THE WATER RECYCLE VALVE.

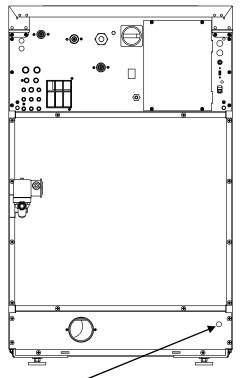
- Temperature range: -10°C to 90°C

- Pressure: 8 bar / 116 PSI

- Connection: outside diameter 19mm

- The hose and the connector must be resistant to chemical substances which are used for the washing process. It is also possible to use a hose with enhanced performance such as the rubber EPDM hose.

#### 4.4.2. WATER DRAIN CONNECTION



Inlet of cable for discharge of water into the water recycle Obr.4.4.2

The drain can be executed in several ways, for example:

- Drain channel
- Drain pipe

ALL DRAIN CHANNELS / PIPES HAVE TO BE DE – AERATED IN ORDER TO ASSURE GOOD DRAINING. THE CHANNEL / PIPE MUST BE LOCATED LOWER THAN THE OUTLETS OF THE RECYCLING BOX. DO NOT REDUCE THE DIAMETER OF THE WATER OUTLETS ON THE DEVICE.

The drain pipe/drain channel must have the capacity to be able to handle the total output of all connected machines. Every time a machine is coupled on the drainpipe, the diameter of the tube or the width of the waste channel must be larger. The drain channel or pipe must have a minimum section of 35 cm² / 5,4 square inch per installed washer that is connected to this drain pipe or channel.

The drains are situated on the rear of the recycling box. One drain has to be connected to the waste channel or pipe. This is the lowest drain on the rear of the device. The highest drain must be connected to the drain channel or pipe leading to the water – recycling tank. You can use the elbow, which is a part of the delivery, to connect the outlets with the drain channel or pipe. Secure the elbow with a clamp.

The required distances for installing the drainpipes or channels can be found in fig. 4.1.2.

#### 4.4.3. TREATMENT OF THE RECYCLED WATER

The recycled water must be filtered before entering the recycling tank. A mechanical filter should be installed which filters particles (fluff, buttons, paper, etc.) with a maximum size of 0,2 mm or bigger. A smaller width of the mesh of the filter is always advisable. There must also be a filter at the pressure side of the pump. It is also possible to install a chemical filter additional to the mechanical filter. The manufacturer advises to consult an installer specialized in filter systems.

#### 4.4.4. WATER RECYCLING TANK PROPERTIES

# AUTHORIZED WORKERS WITH A VALID QUALIFICATION IN ACCORDANCE WITH VALID LOCAL STANDARDS MUST EXECUTE THE INSTALLATION OF THE RECYCLING TANK.

The water - recycling tank must meet the following minimum requirements:

- The tank must be made following the national standards.
- Tank capacity: the capacity varies depending on multiple factors, so it must be calculated by an authorized engineer.

The factors are: - the number of washing steps, per washer, in which the water will be recuperated

- the programmable amount of water that will be recuperated in a washing step (this
- amount can be looked up in the installation or programming manual of the washer)
- the number of washers that will deliver water to the recycling tank
- the use of recycled water per washer
- The tank must have an overflow to the sewer. Water from the sewer may not be able to flow back into the recycling tank.
- The network of pipes and hoses, the water pump and the recycling tank must be non corroding. It must resist corrosion of water and chemicals used for washing.
- The tank must be equipped with a system that fills the tank with clean water to a minimum working level, in case the water level drops below a minimum. If this requirement is not met, the washer will not function properly when no recycling water is fed to the washer.
- A pump must transport the recycling water from the tank to the washer. The requirements for the pump depend on the number and type of washers that are connected to the recycling system. The maximum pump pressure is 8 bar / 116 PSI. An authorized engineer must calculate the pump properties.

IT IS PROHIBITED TO HEAT THE WATER IN THE RECYCLING TANK. THIS WOULD DISTURB THE TEMPERATURE BALANS OF THE WASHER AND WILL MAKE THE REMAINING CHEMICALS IN THE RECYCLING WATER MORE ACTIVE, WHICH WILL AID THE CORROSION OF THE INSTALLATION.

### 5. MAINTENANCE

/!\ WARNING!

ALWAYS FOLLOW SAFETY INSTRUCTIONS! ANY INTERFERENCE TO THE MACHINE FUNCTIONS AND CONSTRUCTION ARE PROHIBITED. BEFORE MAINTENANCE, ALWAYS DISCONNECT THE MACHINE POWER SUPPLY.

In case of serious failures call the technical service of your supplier. When replacing any parts of the device, exchange them with original parts obtained from your dealer or ordered through the spare parts catalogue.

#### **5.1. REGULARY MAINTENANCE**

/!\ WARNING!

#### HOT PARTS SHOULD BE ALLOWED TO COOL FIRST!

- 1. Check visually if the drain valves, hoses and connections are not leaking during the wash process.
- 2. It is also important that the valve opens or closes properly after working. Make sure that no water flows out the water valve to the sewer during the recycling step, by feeling at the drain hose that leads to the sewer. Contact a qualified technician when this occurs.
- 3. Clean the drain if the water doesn't drain fluent.

Remark: the drain valve to the sewer opens when electrical power falls out and the drain valve to the recycling tank closes when electrical power falls out.

#### **5.2. WATER FILTERS**

The recycling installation should be equipped with a filter by the installer of the system. It is necessary to clean up the filter regulary to avoid a prolongation of filling the machine with water or the malfunctioning of the water valves. Intervals of cleaning depend on the quality of the water, for example foreign particles in the water line.

### 6. PROGRAMMING THE WATER RECYCLING

#### **6.1. INTAKE OF RECYCLING WATER**

For water recycling, choose the inlets "I5" or "I7" (based on the carried out electrical connection of the water inlet from the recycle into the machine). The valve selection will depend on the pre-programmed temperature of the particular wash-cycle step ("I5" - hot water, "I7" - cold water). The "I5" and "I7" valves do not wash away the washing powder placed in the dispensers. If the washing powder in the dispenser should be washed away, the recycle valve must be combined with valves directly connected to the dispenser in the given wash-cycle step.

For programming the wash programs please refer to the Programming Manual of the washing machine.

#### 6.2. SELECTION OF THE DRAN VALVE

The step, which will be used to recuperate the drain water from, must be programmed. Drain water can only be recuperated in a drain step and extract step.

Proceed as follows:

• Select the configuration menu and set the parameter Drain Valve 2 to "YES". This enables the programming device to select the recycle valve.

In the drain or extract step, drain 2 must be programmed in order to let the drain water flow to the recycling tank. If drain 1 is programmed, the drain water will flow to the sewer.

For programming or editing a drain or extract step, see the programming manual.

Order codes:

Drain valve (normal open), PRI340045051 Recycling drain valve (normal closed), PRI340047051

#### 6.3. THE USE OF A FLOAT IN THE RECYCLING TANK

This option is not obligated, but it is advisable to install a level switch. This level switch must be connected to the microprocessor by means of a potential-free contact. See fig.6.3.

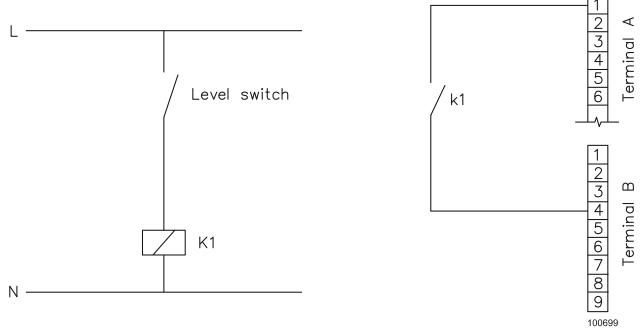


Fig.6.3.

The relay contact K1 has to close when the water level is too low. Terminal B is positioned on the left side, at the bottom of the microprocessor. Terminal A is positioned directly above terminal B. The microprocessor is positioned on the inside of the washer, more precisely on the inside of the front panel (the other side of the display). When the "Check signal recycle" - parameter is put on "yes" in the configuration menu, the timer will give a signal when the water level of the recycling tank is too low.

# 6.4. CONCEQUENCES OF THE RECYCLING SYSTEM ON THE AMOUNT OF LIQUID SOAP SIGNALS

As a result of the use of a terminal, which is normally used for a liquid soap pump, for the control of the water recycling system, it is no longer possible to use this terminal for the control of a liquid soap pump. So one less liquid soap pump can be used.

The restricted terminal can be determined in the electrical scheme of the washer.

# 6.5. EXAMPLE OF A WASHING PROGRAM WITH WATER RECYCLING Information:

- "I5" is connected to the recycle valve

#### Requirements:

- Water of the second rinse must be recycled
- Use as much as possible recycled water in the prewash, wash and first rinse.

PROCESS NUMBER	STEP NUMBER	NAME OF STEP	PROGRAMMER FUNCTIONS
P01	St01	Prewash	PREWASH TEMPERATURE 40°C (104°F) LEVEL XX INLETS 5 (recycled water), 1 TIME 04.0 MIN
P01	St02	Extract	EXTRACT DRAIN: 1 TIME 00.5 MIN
P01	St03	Wash	WASH TEMPERATURE 60°C (140°F) LEVEL XX INLETS 5 (recycled water), 6 TIME 09.0 MIN
P01	St04	Drain	DRAIN DRAIN: 1 TIME 00.5 MIN
P01	St05	1 <sup>st</sup> rinse	RINSE LEVEL XX INLETS 7 (recycled water), 2 TIME 01.5 MIN
P01	St06	Extract	EXTRACT DRAIN: 1 TIME 00.5 MIN
P01	St07	2 <sup>nd</sup> rinse	RINSE LEWEL XX INLETS 1, 2 TIME 01.5 MIN
P01	St08	Extract	EXTRACT DRAIN: 2 TIME 00.5 MIN
P01	St09	3 <sup>rd</sup> rinse	RINSE LEVEL XX INLETS 4 [use of softener] TIME 02.0 MIN
P01	St10	Extract	EXTRACT DRAIN: 1 TIME 04.5 MIN

Tab.6.5.

XX - This value differs in every machine type. The values for individual types are listed in the programming manual of the washer.

The result of the following choices are:

DRAIN: 1  $\rightarrow$  The drain water will flow to the sewer.

DRAIN: 2  $\rightarrow$  The drain water will flow to the recycling tank.

IMPORTANT!			
MACHINE TYPE:			
PROGRAMMER: ELECTRONIC TIMER			
INSTALLATION DATE:			
INSTALLATION CARRIED OUT BY:			
SERIAL NUMBER:			
ELECTRICAL I			
ANY CONTACTS WITH YOUR DI MACHINE SAFETY, OR SPARE I THE ABOVE IDENTIFICATION. MAKE CERTAIN TO KEEP THIS PLACE FOR FUTURE REFEREN	PARTS, MUST INCLUDE  MANUAL IN A SECURE		
DEALER:			