INDEX

ENGLISH

EN INDEX OF FIGURES AND TABLES

INDEX OF FIGURES

INDEX OF TABLES

Foreword

The instruction manual (hereinafter Manual) provides the operator with useful information for working correctly and safely, facilitating him in using the machine (hereinafter “machine”, “dishwasher” or “equipment”).

The following must not be considered a long and exacting list of warnings, but rather a set of instructions suitable for improving machine performance in every respect and, above all, preventing injury to persons and animals and damage to property due to improper operating procedures.

All persons involved in machine transport, installation, starting, use and maintenance, repair and dismantling must consult and carefully read this manual before performing the various operations, for the purpose of avoiding wrong and improper actions that could negatively affect the machine’s integrity or endanger persons.

The manual must always be available to operators and carefully kept in the place where the machine is used so that it is immediately at hand for consultation in case of doubts or whenever required.

If, after reading this manual, there are still doubts regarding machine use, do not hesitate to contact the Manufacturer, or the authorized assistance centre, to receive prompt and precise assistance for better operation and maximum efficiency of the machine.

During all phases of machine use, always respect the current regulations on safety, work hygiene and environmental protection. It is the user’s responsibility to make sure the machine is started and operated only in optimal safety conditions for persons, animals and property.

A TSAFETY INSTRUCTIONS

- This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved.
- Do not let children play with the appliance.
- Cleaning and user maintenance shall not be made by children without supervision.

WARNING

Do not wash the appliance with direct or high pressure jets of water.

B GENERAL INFORMATION

B1 Introduction

This chapter describes the symbols used (that mark and identify the type of warning) and gives the definitions of terms used in the manual, responsibilities and copyright.

B2 Definitions

Listed below are the definitions of the main terms used in the Manual. Carefully read them before using the Manual.

Operator

an operator who carries out machine installation, adjustment, use, maintenance, cleaning, repair and transport.

Manufacturer

Electrolux Professional S.p.A. or any other assistance centre authorized by Electrolux Professional S.p.A..

Operator qualified for normal machine use

an operator who has been informed, instructed and trained regarding the tasks and hazards involved in normal machine use.

Specialized technician or Technical assistance

an operator instructed/trained by the Manufacturer and who, based on his professional and specific training, experience and knowledge of the accident-prevention regulations, is able to appraise the operations to be carried out on the machine and recognize and prevent possible risks. His professionalism covers the mechanical, electrotechnical and electronics fields.

Danger

source of possible injury or harm to health.

Hazardous situation

any situation where an operator is exposed to one or more hazards.

Risk

a combination of probabilities and risks of injury or harm to health in a hazardous situation.

Guards

safety measures consisting of the use of specific technical means (guards and safety devices) for protecting operators against dangers.

Guard

an element of a machine used specifically to provide protection by means of a physical barrier.

Safety device

a device (other than a guard) that eliminates or reduces the risk; it can be used alone or in combination with a guard.

Customer

the person who purchased the machine and/or who manages and uses it (e.g. company, entrepreneur, firm).

Emergency stop device

a group of components intended for the emergency stop function; the device is activated with a single action and prevents or reduces damage to persons/ machines/property/animals.

Electrocution

an accidental discharge of electric current on a human body.

B3 Typographical conventions

For best use of the manual, and therefore the machine, it is advisable to have good knowledge of the terms and typographical conventions used in the documentation.

The following symbols are used in the manual to mark and identify the various types of hazards:

WARNING!

DANGER FOR THE HEALTH AND SAFETY OF OPERATORS.

WARNING!

DANGER OF ELECTROCUTION - DANGEROUS VOLTAGE.

Machine guards and protection devices marked with this symbol must only be opened by qualified personnel, after disconnecting the power to the machine.

WARNING!

DANGER OF DAMAGE TO THE MACHINE.

INSTRUCTIONS MARKED WITH THIS SYMBOL INDICATE THE NEED TO:

- TURN THE MAIN SWITCH OF THE MACHINE TO “O” (OFF).
- LOCK THE MAIN SWITCH WITH THE SPECIAL PADLOCK, AND KEEP THE KEY.
- DISPLAY A SIGN INDICATING THAT THE MACHINE IS UNDERGOING MAINTENANCE AND NOT TO CARRY OUT MANOEUVRES.

Words and safety warnings further explaining the type of hazard are placed next to the symbols in the text. The warnings are intended to guarantee the safety of personnel and prevent damage to the machine or the product being worked.

The drawings and diagrams given in the manual are not in scale. They supplement the written information with an outline, but are not intended to be a detailed representation of the machine supplied.

The numerical values given in the machine installation diagrams refer to measurements expressed in mm (see par. F6.2 “Installation diagrams”).

Conventionally, the machines are depicted with the rack feed side on the right (RH); machines with left rack feed (LH) are depicted only if necessary, in which case the side will be expressly specified.

Due to its size, the machine is sometimes shown schematically divided into its functional modules in order to provide a complete view.

B4 Machine and Manufacturer's identification data

A reproduction of the marking or dataplate on the machine is given below.

				2013
F.Mod.	ECRT200RA	Comm.Model		
PNC	9CGX 534046 00	Ser.Nr. 84500001		
EL	AC 380-415V 3N	50 Hz	Max	42,25 kW
			Nominal	38 kW

CE IPX5 WaterMark Intertek

Electrolux Professional spa - Viale Treviso, 15 - 33170 Pordenone (Italy)

				2013
F.Mod.	NRT200RA6	Comm.Model		
PNC	9CGX 534086 00	Ser.Nr. 84500001		
EL	AC 380-400V 3N	60 Hz	Max	42,25 kW
			Nominal	38 kW

IPX5

Electrolux Professional spa - Viale Treviso, 15 - 33170 Pordenone (Italy)

Figure 1 Reproduction of the marking/dataplate on the machine.

The dataplate gives the product identification and technical data; the meaning of the information given on it is listed below.

F.Mod ..... factory description of the product
Comm. Model..... trade description
PNC..... production code number
Ser. No ..... serial number
AC 380-415V 3N .... power supply voltage
50 (60) Hz ..... power supply frequency
42,25 kW..... max. power absorbed
38 kW..... nominal power
2013..... year of construction
IPX5 ..... protection rating
CE ..... CE marking (for ECRT models)
W..... Watermark (for ECRT models)
ETL ..... Conformity to NSF3 (for ECRT models)
Electrolux Professional spa - Viale Treviso, 15 -33170
Pordenone (Italy) ..... Manufacturer

The marking plate is located on the left (machine left) or right (machine right) side panel of the equipment.

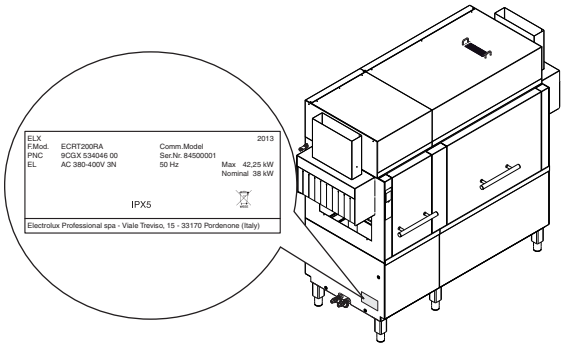

Figure 2 Position of marking (machine left)

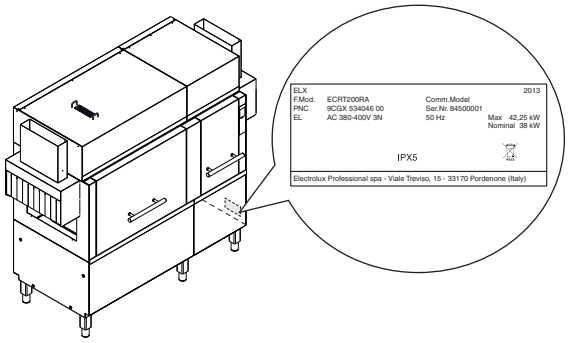

Figure 3 Position of marking (machine right)

WARNING!

Do not remove, tamper with or make the machine marking illegible.

IMPORTANT!

Refer to the data given on the machine marking for relations with the Manufacturer (e.g. when ordering spare parts, etc.).

IMPORTANT!

When disposing of the machine the marking must be destroyed.

B5 Equipment identification

How to identify the technical data

To identify the technical data (Figure 4) read the factory description of the product (F.Mod.) on the dataplate, identify the main machine data and consult the Table 1 "Main technical characteristics, performance and consumption".

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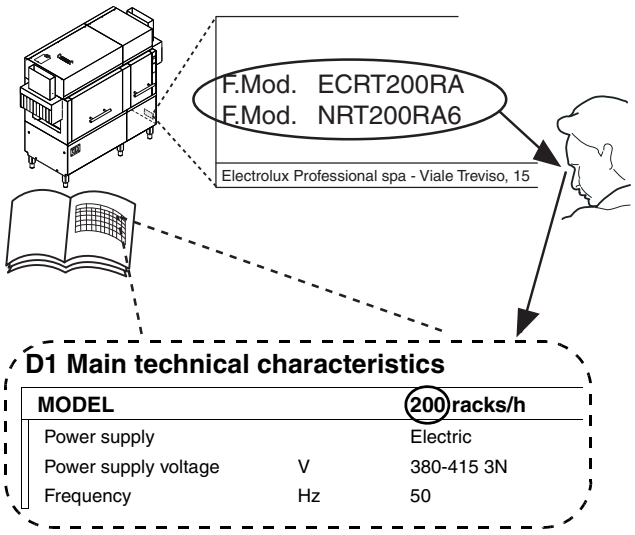


Figure 4 Technical data identification (Machine right)

How to interpret the factory description

The factory description on the dataplate has the following meaning:

(1)	(2)	(3)	(4)	(5)
ECRT/NRT	**200**	**L**	**B**	**6**
ECRT/NRT	**250**	**R**	**AA**	**6**

	Description	Possible variables
(1)	Mark	ECRT/NRT
(2)	Racks/h	200-250
(3)	Rack loading	L = from left to right R = from right to left
(4)	Functional level	AA= Pressurized plumbing circuit with CU and ELT-S certification A = Pressurized plumbing circuit with CU B = Pressurized plumbing circuit without CU
(5)	Frequency	6 = 60Hz

B6 Copyright

This manual is intended for consultation only by the operator and can be given to third parties only with the written permission of Electrolux Professional S.p.A..

B7 Liability

The instructions are updated to the month and year given in the box located at the bottom right of the cover. The edition corresponds to the manual revision number. Every new edition replaces and cancels the previous ones.

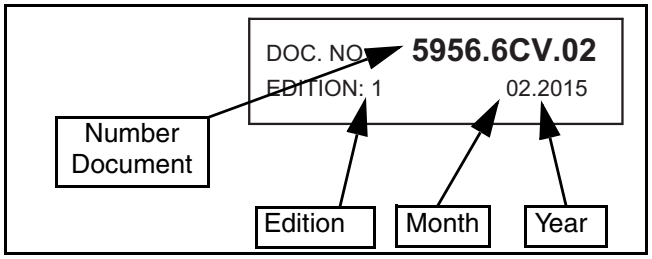


Figure 5 Example of document and edition identification data.

The Manufacturer declines any liability for damage and malfunctioning caused by:

- non-compliance with the instructions contained in this manual;
- repairs not carried out in a workmanlike fashion, and replacements using spare parts different from those specified in this manual (the fitting and use of non-original spare parts and accessories can negatively affect machine operation);
- operations by non-specialized technicians;
- unauthorized modifications or operations;
- inadequate maintenance;
- improper machine use;
- unexpected extraordinary events;
- use of the machine by uninformed and untrained personnel;
- non-application of the current provisions in the country of use, concerning safety, hygiene and health in the workplace.

The Manufacturer declines any liability for damage caused by arbitrary modifications and conversions carried out by the user or the Customer.

The employer or workplace manager is responsible for identifying and choosing adequate and suitable personal protection equipment to be worn by operators, in compliance with current regulations in the country of use.

Electrolux Professional S.p.A. declines any liability for possible inaccuracies contained in the manual, if due to printing or translation errors.

Any supplements to the instruction manual the Customer receives from the Manufacturer must be kept together with the manual, of which they will form an integral part.

B8 Personal protection equipment

Give below is a summary table of the Personal Protection Equipment (PPE) to be used during the various stages of the machine's service life.

Stage	Protective garments	Safety footwear	Gloves	Glasses	Safety helmet
Transport	—	●	○	—	○
Handling	●	●	○	—	—
Unpacking	○	●	○	—	—
Assembly	○	●	○	—	—
Normal use	●	●	● (1)	○	—
Adjustments	○	●	—	—	—
Routine cleaning	○	●	● (1)	○	—
Extraordinary cleaning	○	●	● (1)	○	—
Maintenance	○	●	○	—	—
Dismantling	○	●	○	—	—
Scrapping	○	●	○	—	—

Key:

●	**PPE REQUIRED**
○	**PPE AVAILABLE OR TO BE USED IF NECESSARY**
—	**PPE NOT REQUIRED**

(1) Use heat resistant gloves suitable for contact with water and the substances used (see the safety data sheet of the substances used to check other possible PPE).

Failure to use the personal protection equipment by operators, specialised technicians or users can involve exposure to chemical risk and possible damage to health.

B9 Keeping the manual

The manual must be carefully kept for the entire life of the machine until decommissioning.

The manual must stay with the machine in case of transfer, sale, hire, granting of use or leasing.

B10 Constructional modifications

The Manufacturer provides for the possibility of connecting the rack-type dishwasher to rack handling systems included in the Electrolux Professional product catalogue, with the possibility of obtaining various configurations.

The EC Conformity Declaration provided with the machine also envisages these configurations. The Manufacturer does not provide for the possibility of making other constructional modifications to the machine, but allows the execution of other types of combinations with systems different from those described above (in order to create a series of machines arranged and controlled in an integral way), as illustrated in this documentation.

In which case it is necessary to comply with provisions of the applicable European Directives or current regulations in the country of use, and obtain the required certifications. The Manufacturer declines any liability for damage caused by arbitrary modifications and conversions carried out by the user or third parties. For requests or for further information, contact Electrolux Professional S.p.A. - Via Treviso, 15 - 33170 Pordenone - Italy.

B11 Users of the manual

This manual is intended for:

- the carrier and handling personnel;
- installation and start-up personnel;
- the employer of machine users and the workplace manager;
- operators in charge of normal machine use;
- specialized technicians - technical assistance (see wiring diagram and service manual).

C GENERAL DESCRIPTION OF MACHINE

C1 General description

The rack-type dishwasher is suitable for washing dishes, glasses, cups, cutlery, trays, containers and receptacles in plastic and/or steel used for preparing, cooking and serving; as well as various cooking utensils in ceramic and/or metal.

The machine is designed for the above-mentioned applications. Under no circumstances may the machine be used for other applications or ways not provided for in this manual.

This equipment has been produced to meet the needs for a better work environment and economical efficiency. These dishwashers are used in restaurants, cafeterias, cooking centres and large institutions.

The special dish racks, that can be equipped with various inserts, offer practical and easy use for obtaining excellent washing results. Rack handling inside the machine occurs automatically. The electronic system enables complete supervision of the washing process. The control panel also has a display that shows the operating parameters and signals any anomalies.

In this type of machine the rack is taken from the loading point to the unloading point, through the various washing functions. Systems for scraping and wetting the dishes (e.g. manual prewash spray) and areas for sorting and arranging them in the racks must be arranged ahead of the dishwasher.

The possible configurations of compact rack-type dishwashers, classified according to the maximum number of racks washed in one hour, are as follows:

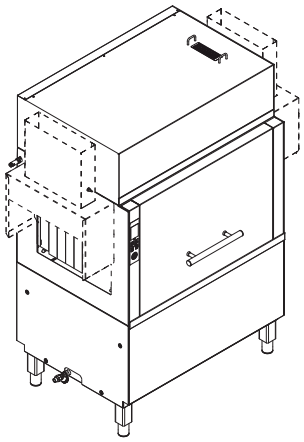
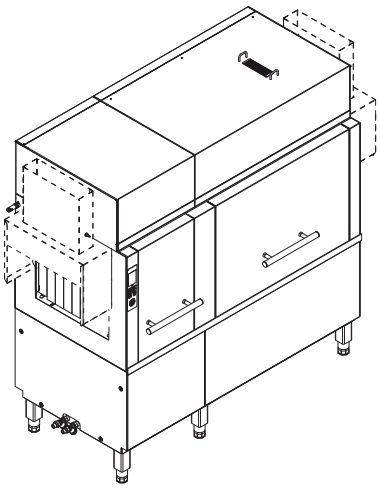
200 racks/h	250 racks/h
	

Figure 6 View of different configurations of compact rack-type dishwashers

C2 Description of machine modules

The machine consists of the following zones:

- wash zone
- rinse zone

and can be integrated with the following units:

- prewash zone
- energy recovery/steam suppression unit (CU)
- drying zone (DT).

C2.1 Wash zone

Water with the addition of detergent is sprayed on the dishes in the wash zone through an upper and lower wash arm system. The purpose of this function is to remove all residuals of food from the dishes. Washing is carried out with water circulating at a temperature of 55-65 °C (71-78 °C ETL-S version).

C2.2 Rinse zone

Water with the addition of rinse aid is sprayed on the dishes in the rinse zone through a system of arms equipped with special nozzles. The purpose of this function is to remove all residuals of detergent deriving from the previous wash phase.

Rinsing is carried out with clean water coming from the water system, heated to a max. temperature of 82-90 °C.

The high temperature ensures satisfactory drying and careful neutralization of bacteria. The addition of rinse aid allows the water to easily run off the dishes, thus favouring the drying process.

C2.3 Prewash zone

Water is sprayed on the dishes in the prewash zone through an upper and lower prewash arm system. The purpose of this function is to remove the larger food residuals, preparing the dishes for the subsequent wash phase.

C2.4 Energy recovery/steam suppression unit (CU)

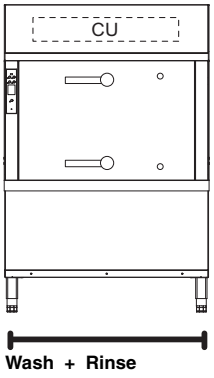
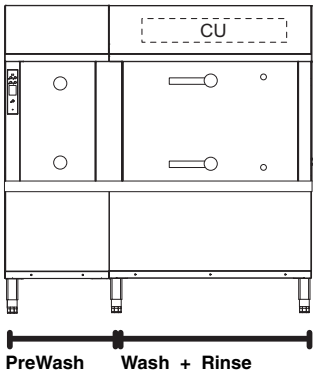
Some rack-type dishwasher versions can be supplied with an energy recovery/steam suppression unit called a condensing unit (CU). It consists of a fan and an air-water heat exchanger. By means of the fan, the steam present inside the wash zone is exhausted and condensed thanks to the heat exchange with the cold water entering; the condensed steam (water) is recovered in the wash tank. This also offers the advantage of heating the cold water entering, recovering a part of the heat that would otherwise be dissipated into the environment.

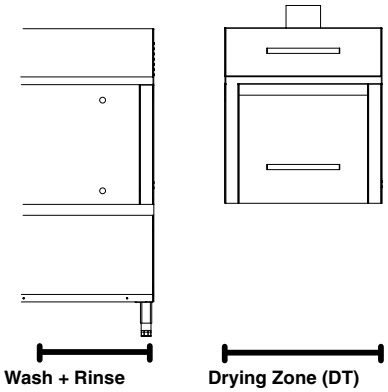
C2.5 Drying zone (DT)

The dishes come under a flow of hot air in the drying zone, facilitating the water evaporation process. Drying occurs with hot air at a temperature of 50-60 °C. This function can be added at the machine outfeed after the rinse zone.

C2.6 View of module composition

In rack-type dishwashers the various zones just described are thus applied to the various previously defined configurations.

Rack-type dishwasher - 200 racks/h	Rack-type dishwasher - 250 racks/h
	

Possible drying zone added only at the machine outfeed after the wash/rinse zone


D TECHNICAL DATA

D1 Main technical characteristics

MODEL			ECRT200LB/ ECRT200RB/ NRT200LB6/ NRT200RB6/	ECRT200LA/ ECRT200RA/ NRT200LA6/ NRT200RA6	ECRT200LAA/ ECRT200RAA/ NRT200LAA6/ NRT200RAA6	ECRT250LB/ ECRT250RB/ NRT250LB6/ NRT250RB6	ECRT250LA/ ECRT250RA/ NRT250LA6/ NRT250RA6	ECRT250LAA/ ECRT250RAA/ NRT250LAA6/ NRT250RAA6
MAIN TECHNICAL DATA	Power supply		Electric	Electric	Electric	Electric	Electric	Electric
	Power supply voltage	V	380-415 3N 380-400 3N(**)	380-415 3N 380-400 3N(**)	380-415 3N 380-400 3N(**)	380-415 3N 380-400 3N(**)	380-415 3N 380-400 3N(**)	380-415 3N 380-400 3N(**)
	Frequency	Hz	50 60(**)	50 60(**)	50 60(**)	50 60(**)	50 60(**)	50 60(**)
	Max. power. absorbed **[1]**	kW	49,75	42,25	45,25	50,25	42,75	45,75
	Nominal power	kW	45,5	38	41	46	38,5	41,5
	Max. current. absorbed (only machine) **[2]**	A	72	60	65	73	61	66
	Type of power cable		H07RN-F	H07RN-F	H07RN-F	H07RN-F	H07RN-F	H07RN-F
	Power cable	N° x mm^2	5x25	5x16	5x16	5x25	5x16	5x16
	Main switch	A	80A 3+N	80A 3+N	80A 3+N	80A 3+N	80A 3+N	80A 3+N
	Supply water pressure	kPa [bar]	150..700 [1,5..7]	150..700 [1,5..7]	150..700 [1,5..7]	150..700 [1,5..7]	150..700 [1,5..7]	150..700 [1,5..7]
	Wash: • Cold/Hot water supply temp.	°C	10-60	10-60	10-60	10-60	10-60	10-60
	Prewash: • Cold water supply temp.	°C	-	-	-	10-30	10-30	10-30
	Concentration of chlorides in water	ppm	< 20	< 20	< 20	< 20	< 20	< 20
	Electric conductivity of water	µS/cm	< 400	< 400	< 400	< 400	< 400	< 400
	Supply water hardness	°f/°d/°e	14/8/10	14/8/10	14/8/10	14/8/10	14/8/10	14/8/10
	Rack loading/feed	RH machine LH machine	From right to left From left to right	From right to left From left to right	From right to left From left to right	From right to left From left to right	From right to left From left to right	From right to left From left to right
	No. speeds		2	2	2	2	2	2
	Capacity speed 1	racks/h	100	100	100	180	180	180
	Capacity speed 2	racks/h	200	200	200	250	250	250
	Air emission	m^3/h	180	180	180	180	180	180
	Emitted air temperature	°C	20-25	20-25	20-25	20-25	20-25	20-25
	Water consumption	l/h	300	300	300	300	300	300
	Equivalent sound pressure level Leq **[3]**	dB(A)	LpA:78.2dB - KpA:1.5dB (The noise emission values have been obtained according to EN ISO 11204)					
	Protection rating		IPX5	IPX5	IPX5	IPX5	IPX5	IPX5
	Net weight	kg	255	295	295	380	420	420
PREWASH	tank capacity	l	-	-	-	45	45	45
	temperature	°C	-	-	-	max 40	max 40	max 40
	pump delivery	l/min	-	-	-	150	150	150
	pump power	kW	-	-	-	0,37	0,37	0,37
	current absorbed by pump	A	-	-	-	0,8	0,8	0,8
	tank heating element	kW	-	-	-	10,5	10,5	10,5
	module inlet minimum feed flow rate	l/min	-	-	-	4	4	4
WASH	tank capacity	l	100	100	100	100	100	100
	temperature	°C	55-65	55-65	71-78	55-65	55-65	71-78
	pump delivery	l/min	450	450	450	450	450	450
	pump power	kW	1.5	1.5	1.5	1.5	1.5	1.5
	current absorbed by pumps	A	3.2	3.2	3.2	3.2	3.2	3.2
	tank heating element	kW	10.5+6,0	9,0+9,0	10,5+10,5	10,5 + 6,0	9,0+9,0	10,5+10,5
	module inlet minimum feed flow rate	l/min	12(*)	12(*)	12(*)	12(*)	12(*)	12(*)
RINSE	temperature	°C	82-90	82-90	82-90	82-90	82-90	82-90
	delivery	l/min	5	5	5	5	5	5
	boiler heating elements	kW	9,0 + 9,0 + 9,0	9,0 + 9,0	9,0 + 9,0	9,0 + 9,0 + 9,0	9,0 + 9,0	9,0 + 9,0
	boiler capacity	l	12	12	12	12	12	12
	module inlet minimum feed flow rate	l/min	12(*)	12(*)	12(*)	12(*)	12(*)	12(*)
CU	fan motor power	kW	-	0,13	0,13	-	0,13	0,13
	current absorbed by fan	A	-	0,4	0,4	-	0,4	0,4

Table 1 Main technical characteristics, performance and consumption

[1] Machine with DT.

[2] Machines with DT: in this case the absorbed currents will be added to the absorbed currents indicated in the table of the DT instruction manual.

[3] The value could increase depending on the work station where measured.

(*) Wash and rinse module. **(**) For NRT models**

D2 Characteristics of power supply

The AC power supply to the machine must meet the following conditions:

- max. voltage variation ± 10%
- max. frequency variation ± 1% continuous ± 2% for a short period.

Harmonic distorsion, unbalanced three-phase supply voltage, voltage pulses, interruption, dips and the other electric characteristics must respect the provisions of point 4.3.2 of Standard EN 60204-1 (IEC 60204-1).

IMPORTANT!

The machine's power supply must be protected against overcurrents (short circuits and overloads) by fuses or suitable thermal magnetic circuit breakers.

These MUST be fitted on an omnipolar disconnection system having a contact gap of at least 3 mm.

IMPORTANT!

For protection against indirect contacts (depending on the type of supply provided for and connection of earths to the equipotential protection circuit) refer to point 6.3.3 of EN 60204-1 (IEC 60204-1) with the use of protection devices that ensure automatic cut-off of the supply in case of isolation fault in the TN or TT systems or, for IT systems, the use of isolation controllers or differential current protection devices to activate automatic power disconnection (an isolation controller must be provided for indicating a possible first earth fault of a live part, unless a protection device is supplied for switching off the power in case of a such a fault. This device must activate an acoustic and/or visual signal which must continue for the entire duration of the fault).

For example: in a TT system, a differential switch with cut-in current (e.g. 30 mA) coordinated with the earthing system of the building where the machine is located must be installed ahead of the supply.

IMPORTANT!

Customers are requested to follow these instructions, otherwise the Manufacturer does not guarantee the machine for continuous operation and/or against faults.

E TRANSPORT, HANDLING AND STORAGE

E1 Introduction

Transport (i.e. transfer of the machine from one place to another) and handling (i.e. transfer inside workplaces) must occur with the use of special equipment of adequate capacity.

IMPORTANT!

Due to its size, during transport one machine cannot be stacked on top of another, therefore possible risks of load overturning are excluded.

The machine must only be transported, handled and stored by qualified personnel, who must have:

- specific technical training and experience;
- knowledge of the safety regulations and applicable laws in the relevant sectors;
- knowledge of the general safety provisions;
- the ability to recognize and avoid any possible hazard.

E1.1 Transport: Instructions for the carrier

WARNING!

Do not stand under suspended loads during the loading/unloading phases. Unauthorized personnel must not access the work zone.

IMPORTANT!

The machine's weight alone is not sufficient to keep it steady.

The transported load can shift:

- **when braking;**
- **when accelerating;**
- **in corners;**
- **on particularly rough roads.**

E2 Handling

Arrange a suitable area with flat floor for machine unloading and storage operations.

E2.1 Procedures for handling operations

For correct and safe lifting operations:

- use the type of equipment most suitable for characteristics and capacity (e.g. lift trucks or electric pallet truck);
- cover sharp edges;
- check the forks and lifting procedures according to the instructions given on the packing.

Before lifting:

- send all operators to a safe position and prevent persons from accessing the handling zone;
- make sure the load is stable;
- make sure no material can fall during lifting, and manoeuvre vertically in order to avoid impacts;
- handle the machine, keeping it at minimum height from the ground.

CAUTION!

For machine lifting, do not use movable or weak parts such as casings, electrical raceways, pneumatic parts, etc., as anchoring points.

E2.2 Translation

The operator must:

- have a general view of the path to be followed;
- stop the manoeuvre in case of hazardous situations.

E2.3 Placing the load

Before placing the load make sure the path is free and that the floor is flat and can take the load.

E3 Storage

The machine and/or its parts must be stored and protected against damp, in a non-aggressive place free of vibrations and with room temperature of between -10°C and 50°C.

The place where the machine is stored must have a flat support surface in order to avoid any twisting of the machine or damage to the support feet.

IMPORTANT!

Machine positioning, installation and disassembly must be carried out by a specialized technician.

IMPORTANT!

Do not make modifications to the parts supplied with the machine. Any missing or faulty parts must be replaced with original parts.

F INSTALLATION AND ASSEMBLY

IMPORTANT!

Machine installation operations must only be carried out by specialized Technicians provided with all the appropriate personal protection equipment (safety shoes, gloves, glasses, overalls, etc.), tools, utensils and ancillary means.

IMPORTANT!

Make sure the MAIN SWITCH of the machine is locked in the Off position - "O".

F1 Customer responsibilities

The Customer must provide for the following:

- installation of an adequate electrical power supply ahead of the machine, according to the equipment's technical specifications (Table 1 and D2 "Characteristics of power supply");
- the equipotential connection of the workplace electrical system to the metal structure of the machine by means of a copper cable of adequate section (see position "EQ" ⏚ in par. F6.2 "Installation diagrams");
- Adducting for the electrical connection between the workplace electric panel and the equipment;
- the water supply and drain connections and other connections as indicated in Table 1 and par. F6 "Plumbing connections".

F2 Characteristics of the place of machine installation

The machine is designed for installation in professional and not domestic-type kitchens. Water collection traps/ metal grates must be arranged in the floor at the machine discharges (see par. F6.2 "Installation diagrams"), possibly replaceable with a single water trap sized for a flow rate of at least 3 l/s.

F3 Machine space limits

A suitable space must be left around the machine (for operations, maintenance, etc.).

The passages enabling personnel to operate on the machine must be at least 70 cm wide, except at the rear of the machine (see par. F6.2 "Installation diagrams").

The size must be increased in case of use and/or transfer of other equipment and/or means or if exit routes are necessary inside the workplace.

F4 Positioning

Unless otherwise agreed, the machine is supplied in a single unit.

The machine must be taken to the place of installation and the packing base removed only when being installed.

Arranging the machine:

- Position the machine in the required place.
- Adjust the equipment by turning the special adjustable feet and making sure it is perfectly level, both lengthwise and crosswise.

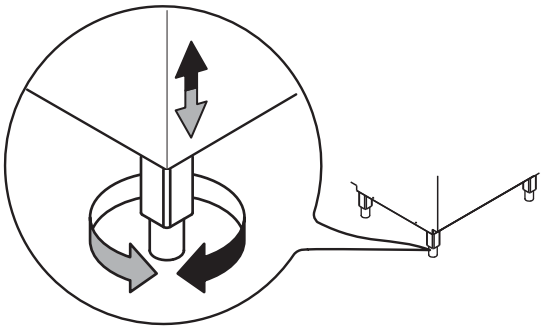


Figure 7 Feet adjustment

- Wear protective gloves and unpack the machine.
- Carefully remove the protective film from the outer panels without tearing it, to avoid leaving traces of glue.

F5 Disposal of packing

All materials used for packing are environmentally compatible. They can be safely kept, and recycled or burnt in a special waste incineration plant. Plastic parts subject to possible recycling are marked as follows:

PE	**polyethylene:**	**outer wrapping, instruction booklet bag.**
PP	**polypropylene:**	**roof packing panels, straps.**
PS	**polystyrene foam:**	**corner protectors.**

Parts in wood and cardboard can be disposed of respecting the current regulations in the country of use.

F6 Plumbing connections

Install the machine water inlets and drain pipes according to the plumbing circuit and installation diagrams given below.

Connect the wash zone and the prewash zone (if present) to the corresponding water inlet hose (Figure 8).

For every connection, installing a cut-off valve "A" (Figure 8) and a pressure gauge "C" (Figure 8) between the appliance and the mains. Paying attention to seal every component in order to avoid water leaks.

Connect the drain pipes (see grey lines - Figure 8).

IMPORTANT

For Australian and New Zeland markets the machine must be installed in accordance with AS/ NZS 3500.1

ECRT200L-ECRT200R NRT200L6-NRT200R6	▬ COLD/HOT WATER [10-60°C]	▬ DRAIN
ECRT250L-ECRT250R NRT250L6-NRT250R6	▬ COLD WATER [10-30°C] ▬ COLD/HOT WATER [10-60°C]	▬ DRAIN
	* RECOMMENDED ** [1 1/2" G] SUPPLIED # [3/4" G]	

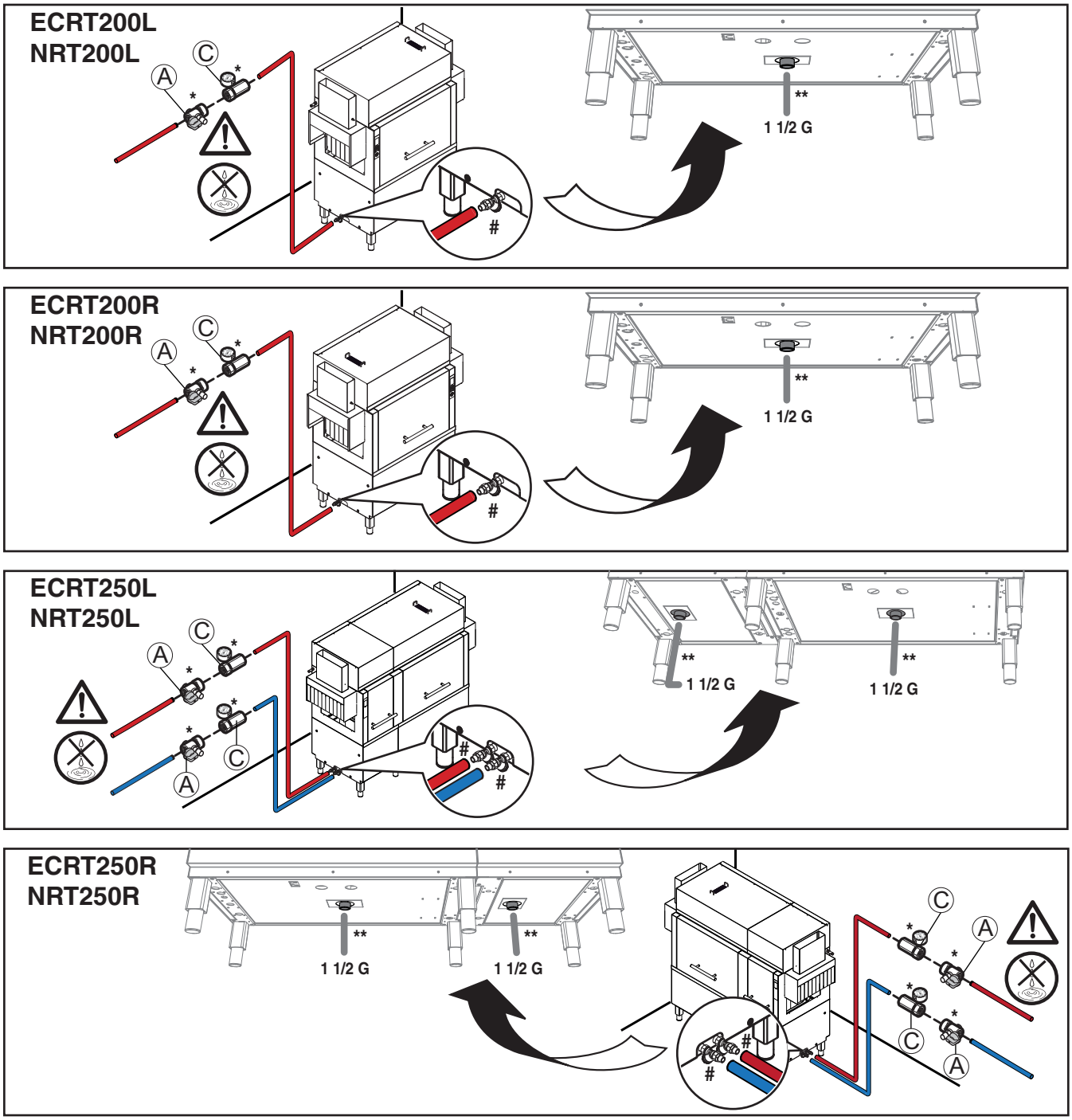


Figure 8 Water and drain connections

F6.1 Plumbing circuits

PREWASH:

- Cold water connection ISO 228/1 DN 20 (G 3/4”). 10-30°C 150 - 700 kPa (1.5 - 7 bar) at 12 l/min.

WASH:

- Hot water connection ISO 228/1 DN 20 (G 3/4"). 10-60°C 150 - 700 kPa (1.5 - 7 bar) at 12 l/min.

The supply water temperature is related to the machine setup.

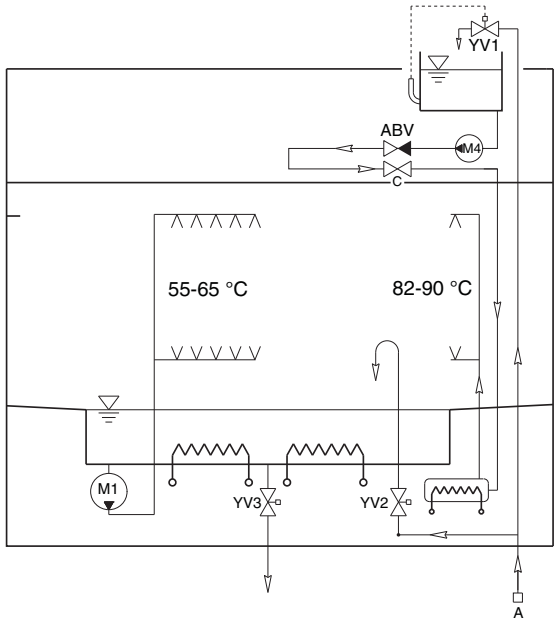
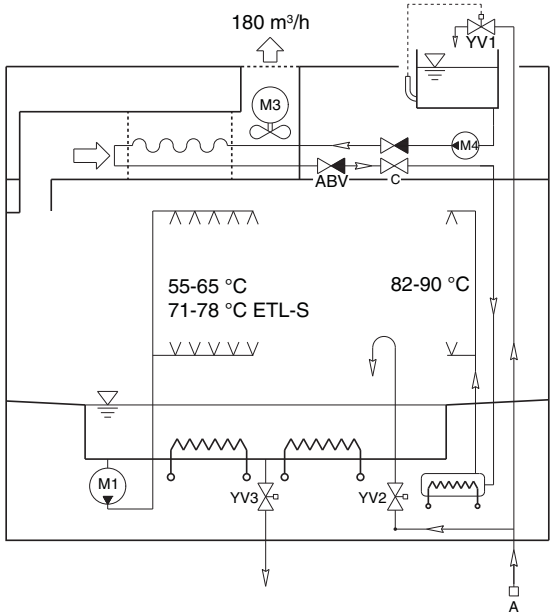
If the water pressure is less than 150 kPa (1.5 bar) a booster pump must be installed ahead of the machine.

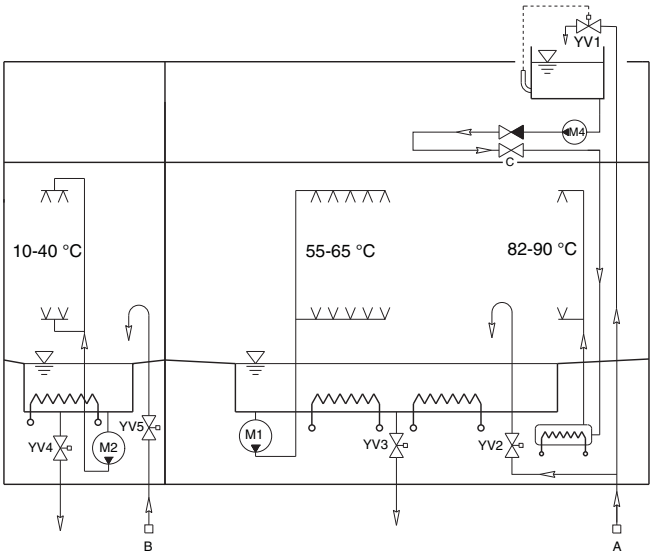
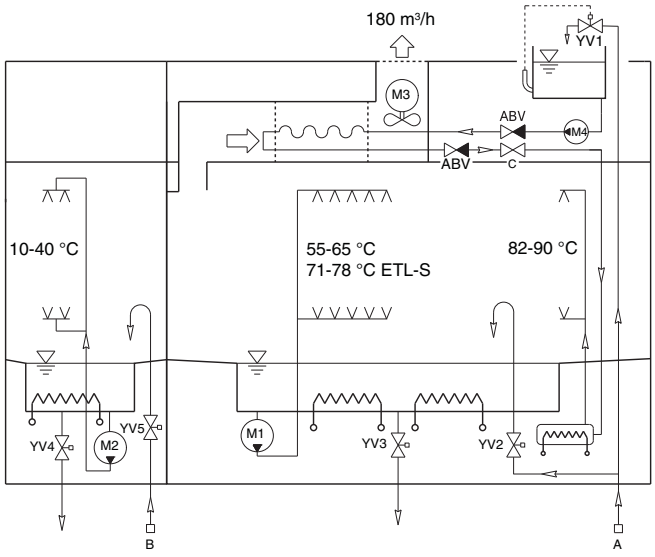
If the pressure at one of the unions exceeds 700 kPa (7 bar), a pressure reducing valve must be installed on the inlet piping.

Connection pipes with anti-return/back flow protection and check valve and on/off valve are available as optional accessories.

IMPORTANT!

If the water hardness exceeds 14°f/8°d/ 10°e and/or concentration of chlorides in water exceeds 20 ppm, install a water treatment device (water softener and/or water demineralizer) on the dishwasher inlet connection piping to ensure efficient machine operation.

Atmospheric plumbing circuit diagram, dishwashers - 200 racks/h without CU	Atmospheric plumbing circuit diagram, dishwashers - 200 racks/h with CU
	

Atmospheric plumbing circuit diagram, dishwashers - 250 racks/h without CU	Atmospheric plumbing circuit diagram, dishwashers - 250 racks/h with CU
	

LEGEND

A = Cold/Hot water inlet (10-60°C)
B = Cold water inlet (10-30°C)
C = Variable shutter (5 l/min)
M1 = Wash pump
M2 = Prewash pump
M3 = CU fan motor
M4 = Rinse pump

ABV = Air Break Valve
YV1 = Air-Gap filling solenoid valve (20 l/min)
YV2 = Wash tank water filling solenoid valve (20 l/min)
YV4 = Prewash tank drain solenoid valve
YV3 = Wash tank drain solenoid valve
YV5 = Prewash tank water filling solenoid valve (20 l/min)

F6.2 Installation diagrams

The following installation diagrams give the machine overall dimensions and position of water and electrical connections, as well as the position of the surround elements such as walls and extractor hoods.

F6.2.1 In/Out fumes hoods for machine

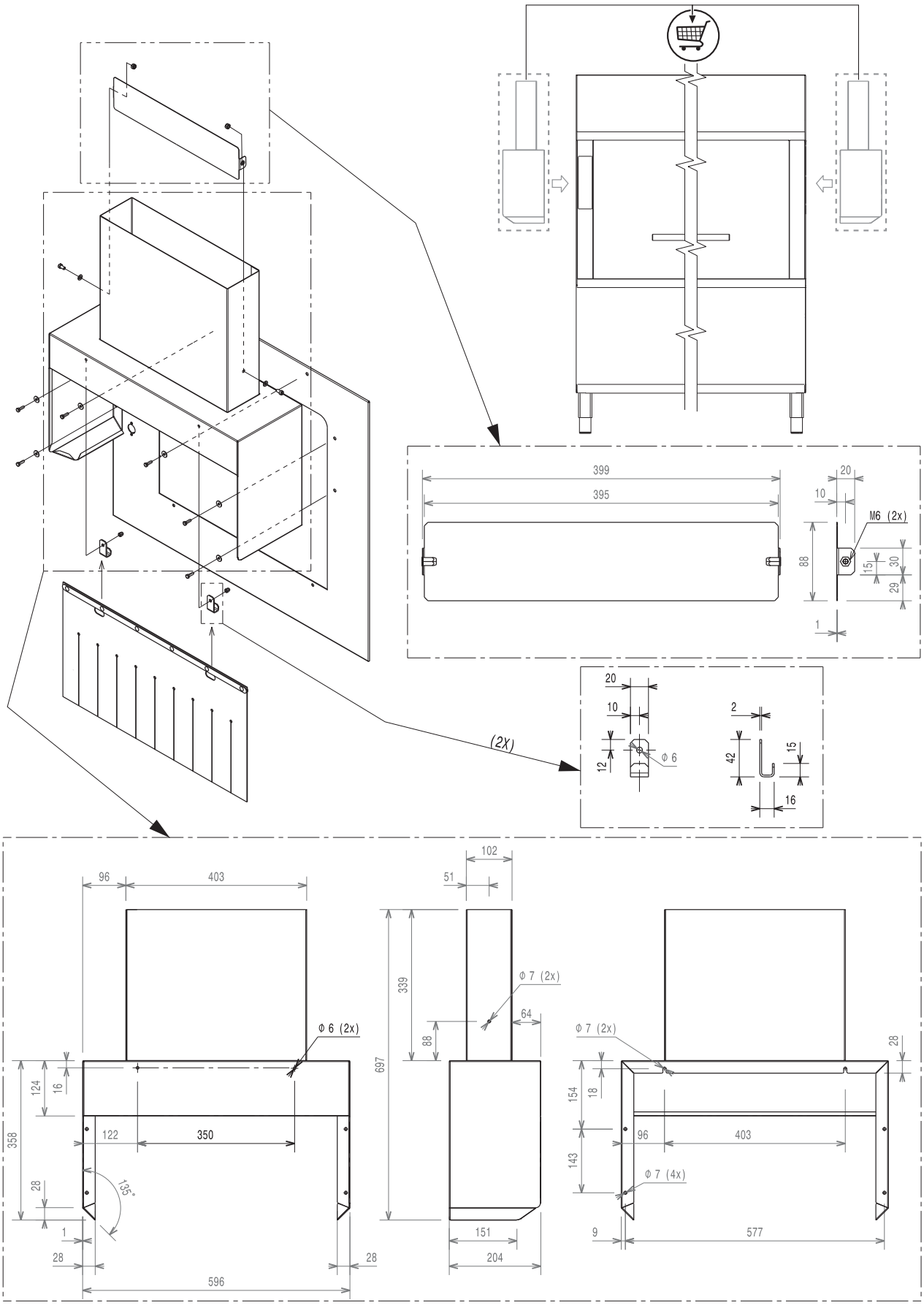


Figure 9 Installation diagram - In/out fumes hoods

F6.2.2 Extraction hood

Make sure to position the possible extraction hood at a distance of not less than 400 mm from the machine so as not to compromise machine operation.

IMPORTANT!

The extractor hood (Figure 10) is installed to remove the steam emitted by the machine. The hood air delivery must be calculated taking into account the machine model, the type of installation and the work environment where installed. However, an air delivery (of hood extraction) of not greater than 300 m^3/h is recommended.

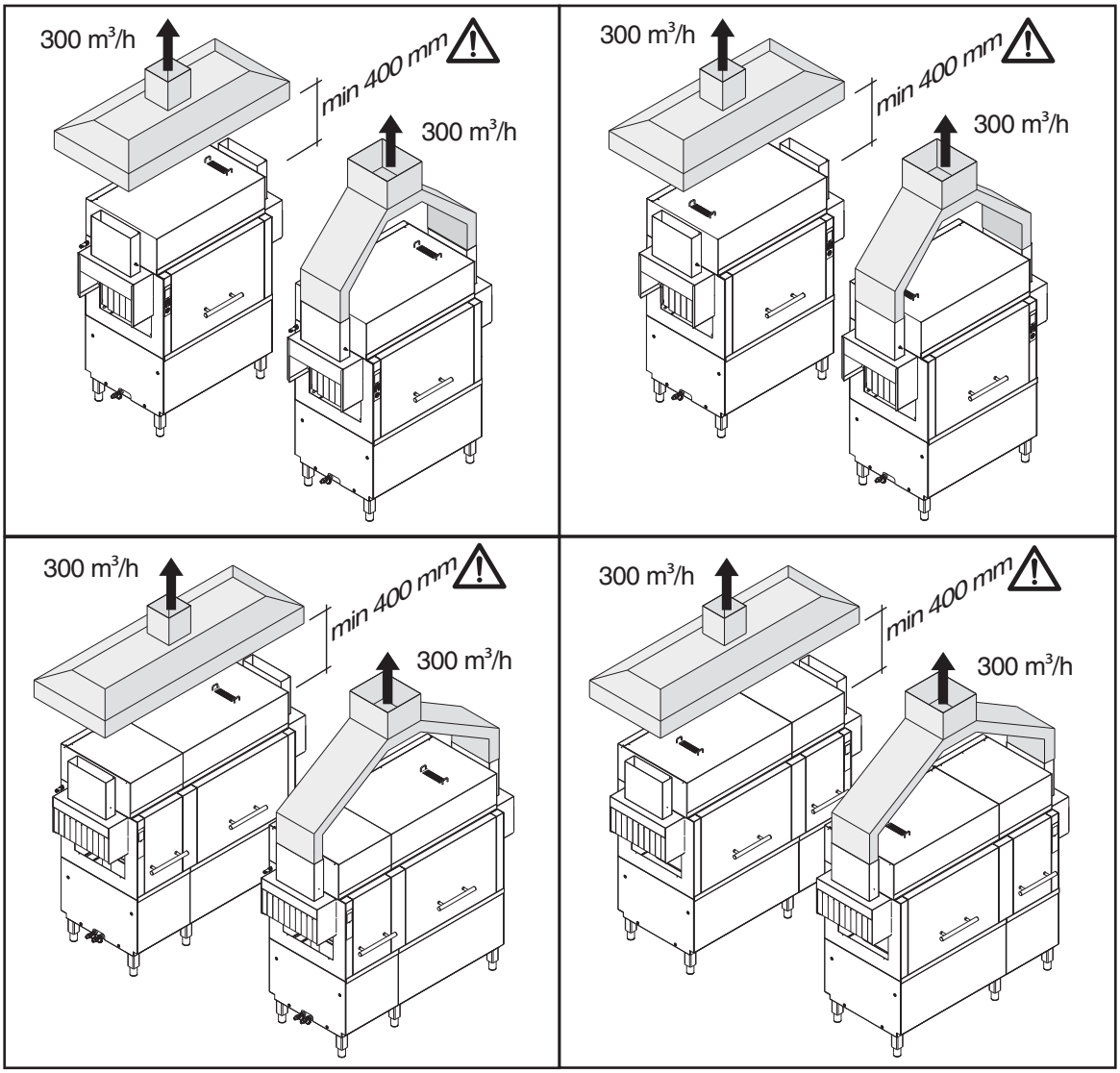


Figure 10 External hood positioning

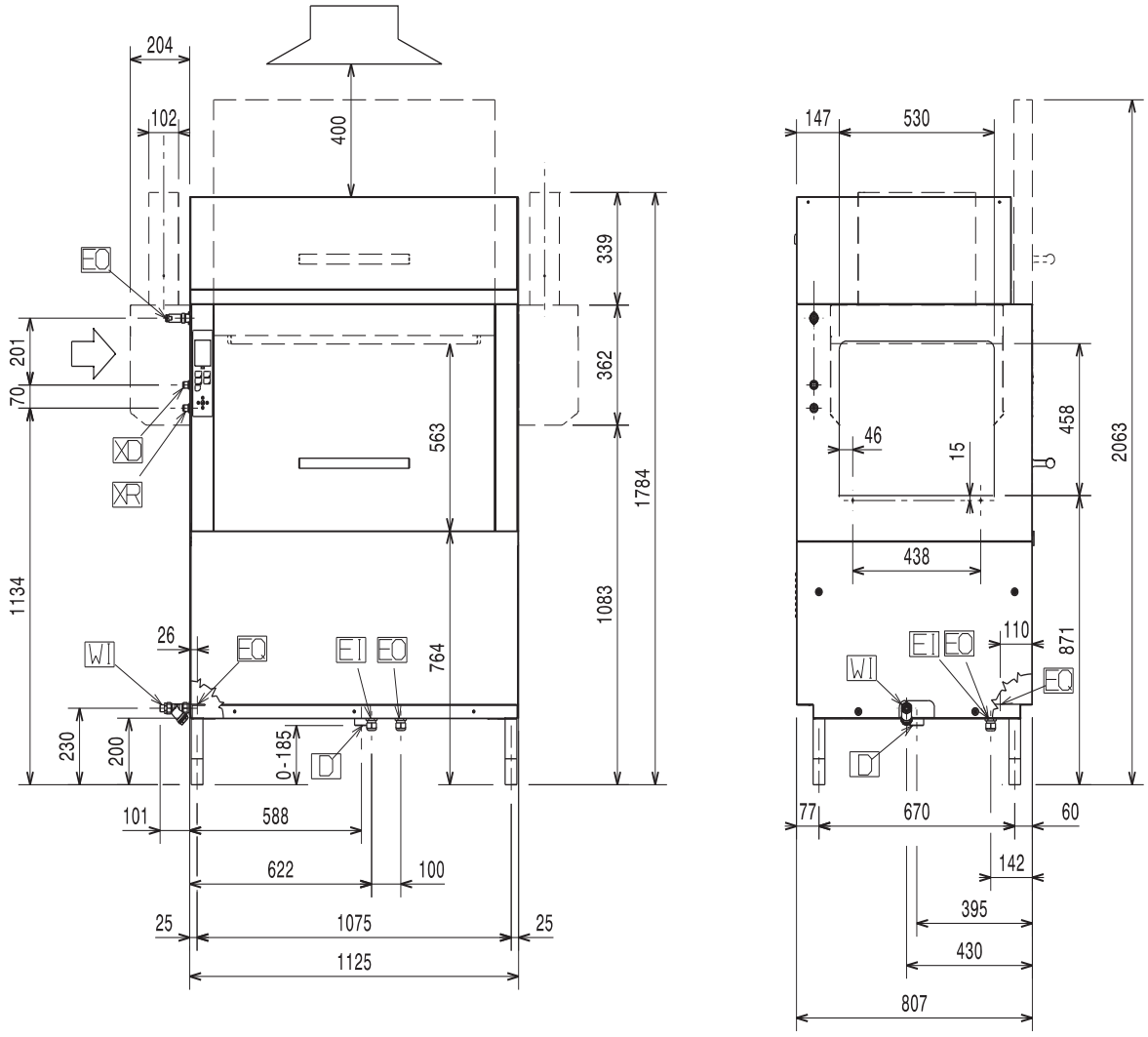
F6.2.3 Machine installation diagrams

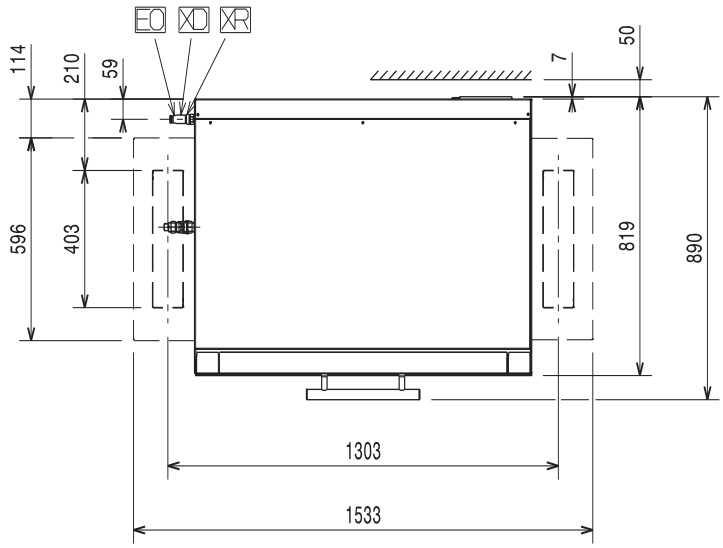
The hood is represented in the diagrams with the symbol: 

Also, the equipment must be installed at a distance of not less than 50 mm from the wall so as not to affect correct ventilation of internal components.

The wall is represented in the diagrams with the symbol: 

Installation diagram - rack-type dishwasher, 200 left (ECRT200LB-NRT200LB6)

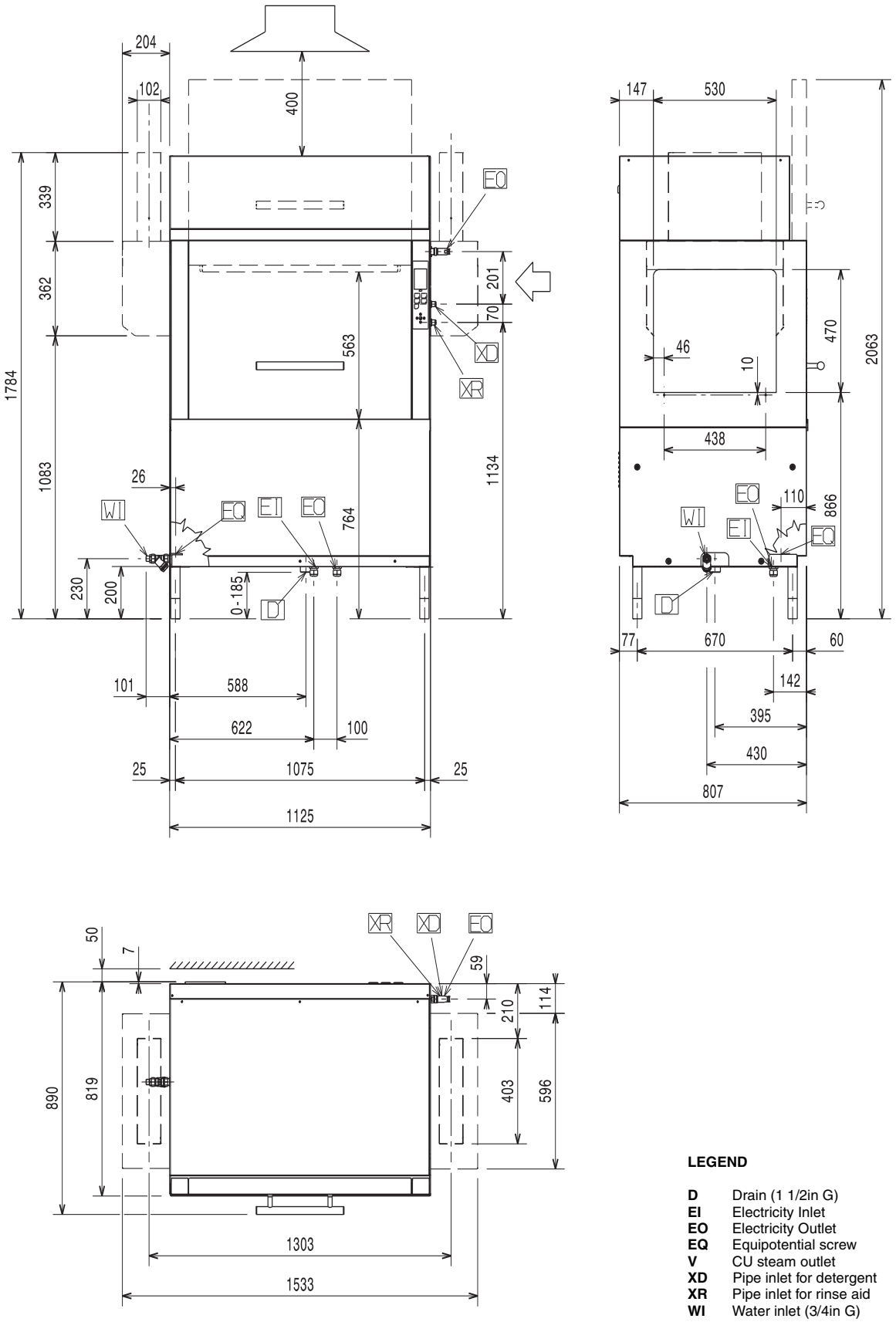




LEGEND

D	Drain (1 1/2in G)
EI	Electricity Inlet
EO	Electricity Outlet
EQ	Equipotential screw
V	CU steam outlet
XD	Pipe inlet for detergent
XR	Pipe inlet for rinse aid
WI	Water inlet (3/4in G)

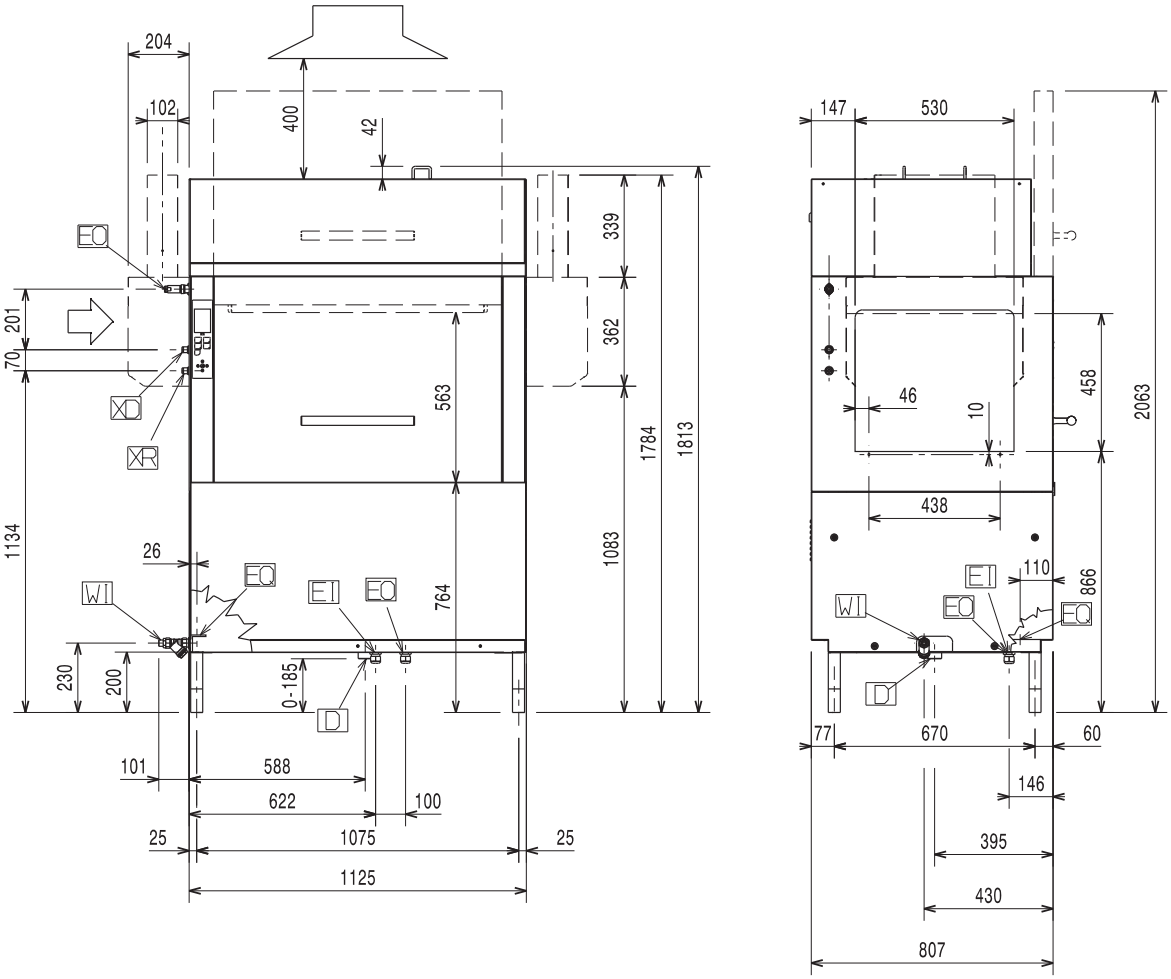
Installation diagram - rack-type dishwasher, 200 right (ECRT200RB-NRT200RB6)

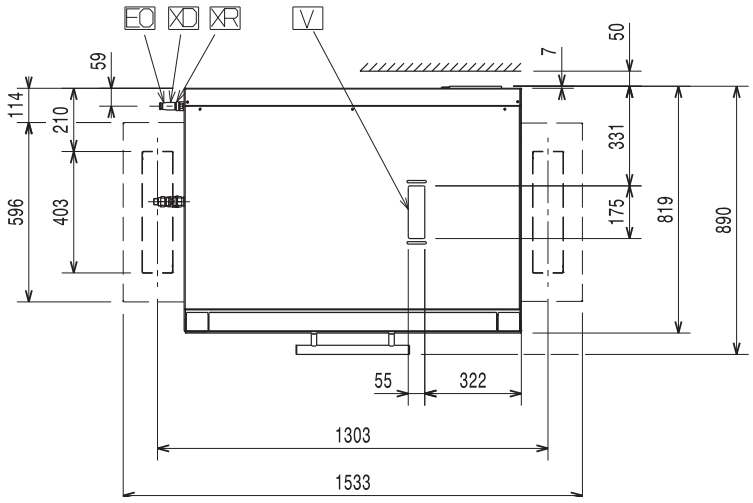


LEGEND

D	Drain (1 1/2in G)
EI	Electricity Inlet
EO	Electricity Outlet
EQ	Equipotential screw
V	CU steam outlet
XD	Pipe inlet for detergent
XR	Pipe inlet for rinse aid
WI	Water inlet (3/4in G)

Installation diagram - rack-type dishwasher, 200 left (ECRT200LA-NRT200LA6/ECRT200LAA-NRT200LAA6)

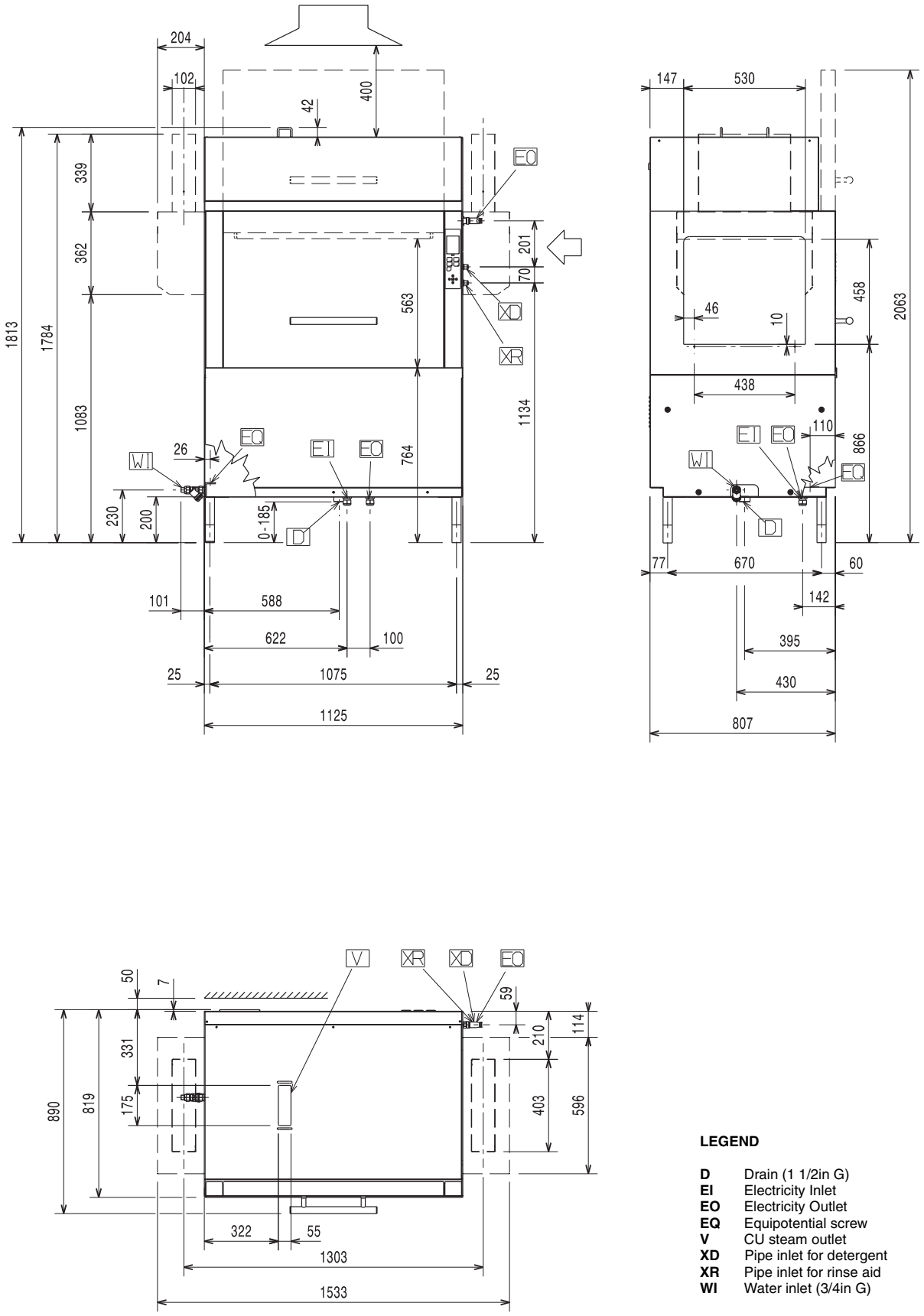




LEGEND

D	Drain (1 1/2in G)
EI	Electricity Inlet
EO	Electricity Outlet
EQ	Equipotential screw
V	CU steam outlet
XD	Pipe inlet for detergent
XR	Pipe inlet for rinse aid
WI	Water inlet (3/4in G)

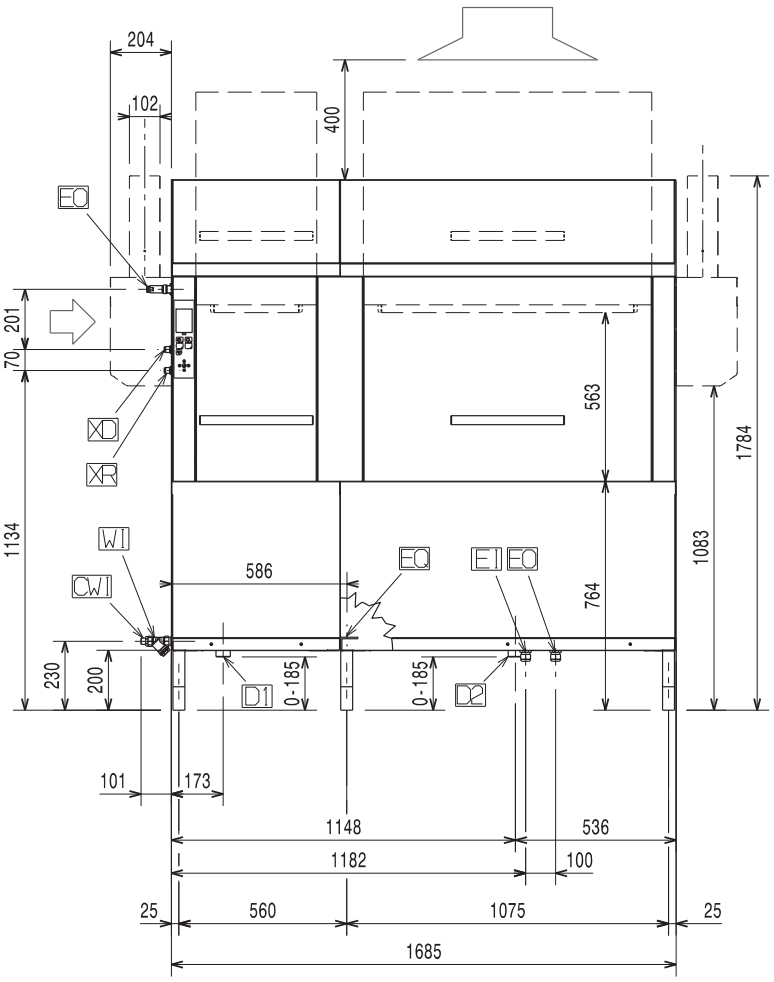
Installation diagram - rack-type dishwasher, 200 right (ECRT200RA-NRT200RA6/ECRT200RAA-NRT200RAA6)

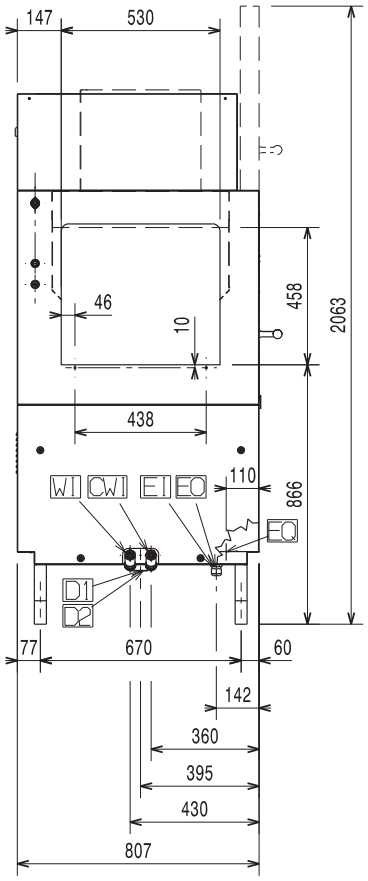


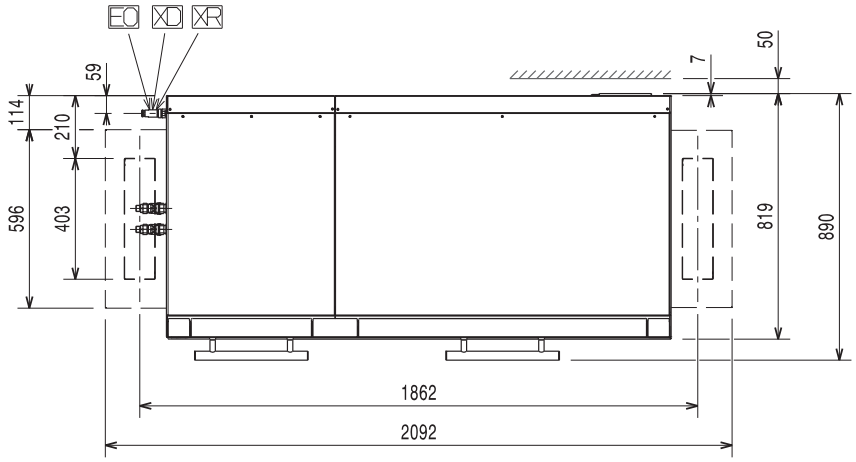
LEGEND

D	Drain (1 1/2in G)
EI	Electricity Inlet
EO	Electricity Outlet
EQ	Equipotential screw
V	CU steam outlet
XD	Pipe inlet for detergent
XR	Pipe inlet for rinse aid
WI	Water inlet (3/4in G)

Installation diagram - rack-type dishwasher, 250 left (ECRT250LB-NRT250LB6)



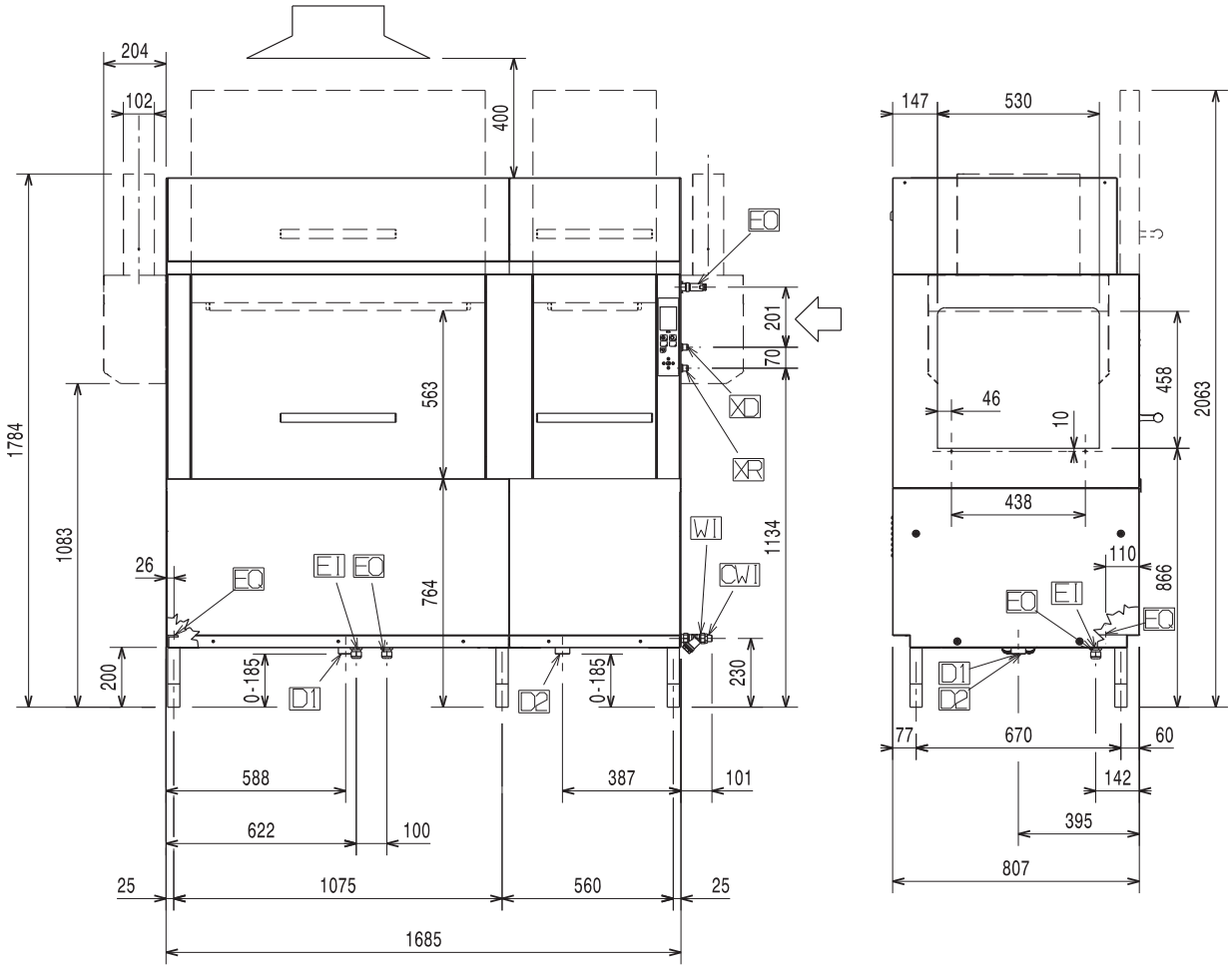


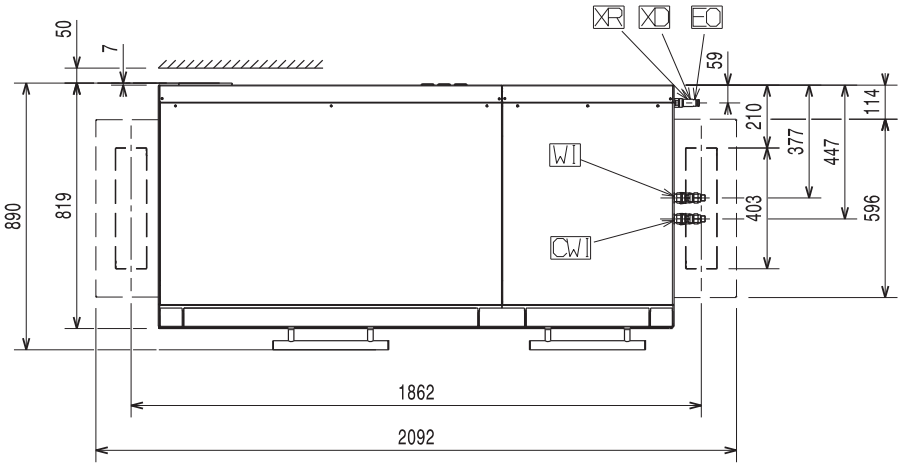


LEGEND

CWI	Cold water inlet (3/4in G)
D	Drain (1 1/2in G)
EI	Electricity Inlet
EO	Electricity Outlet
EQ	Equipotential screw
V	CU steam outlet
XD	Pipe inlet for detergent
XR	Pipe inlet for rinse aid
WI	Water inlet (3/4in G)

Installation diagram - rack-type dishwasher, 250 right (ECRT250RB-NRT250RB6)

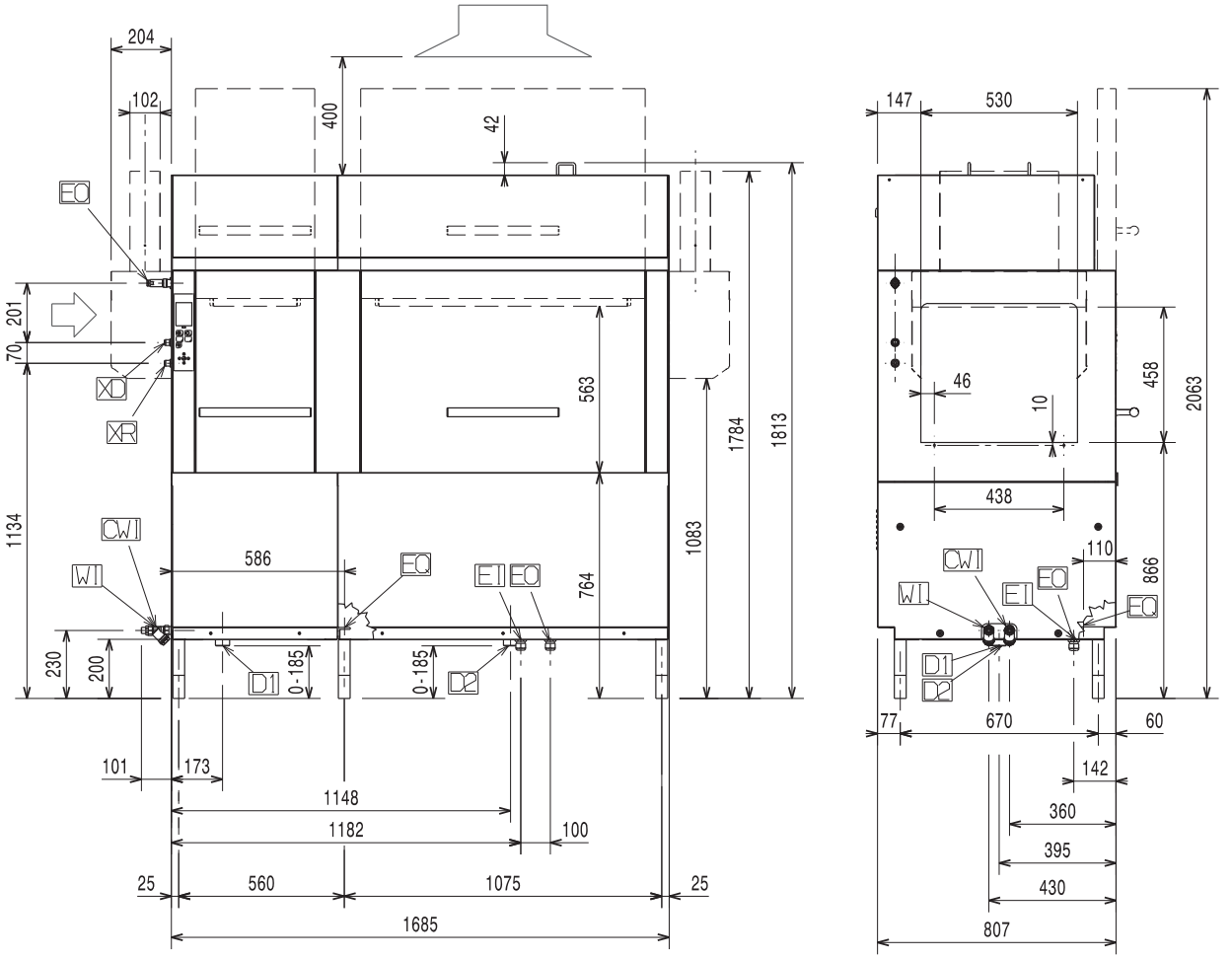


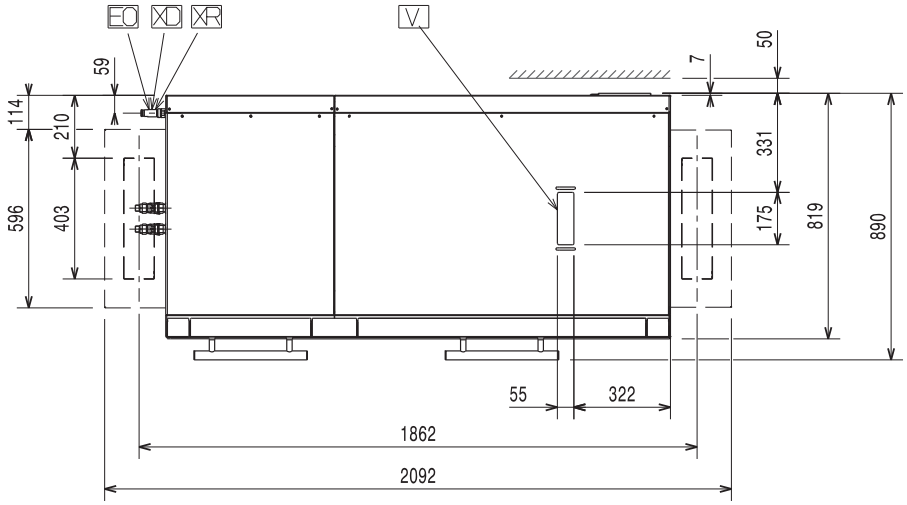


LEGEND

CWI	Cold water inlet (3/4in G)
D	Drain (1 1/2in G)
EI	Electricity Inlet
EO	Electricity Outlet
EQ	Equipotential screw
V	CU steam outlet
XD	Pipe inlet for detergent
XR	Pipe inlet for rinse aid
WI	Water inlet (3/4in G)

Installation diagram - rack-type dishwasher, 250 left (ECRT250LA-NRT250LA6/ECRT250LAA-NRT250LAA6)

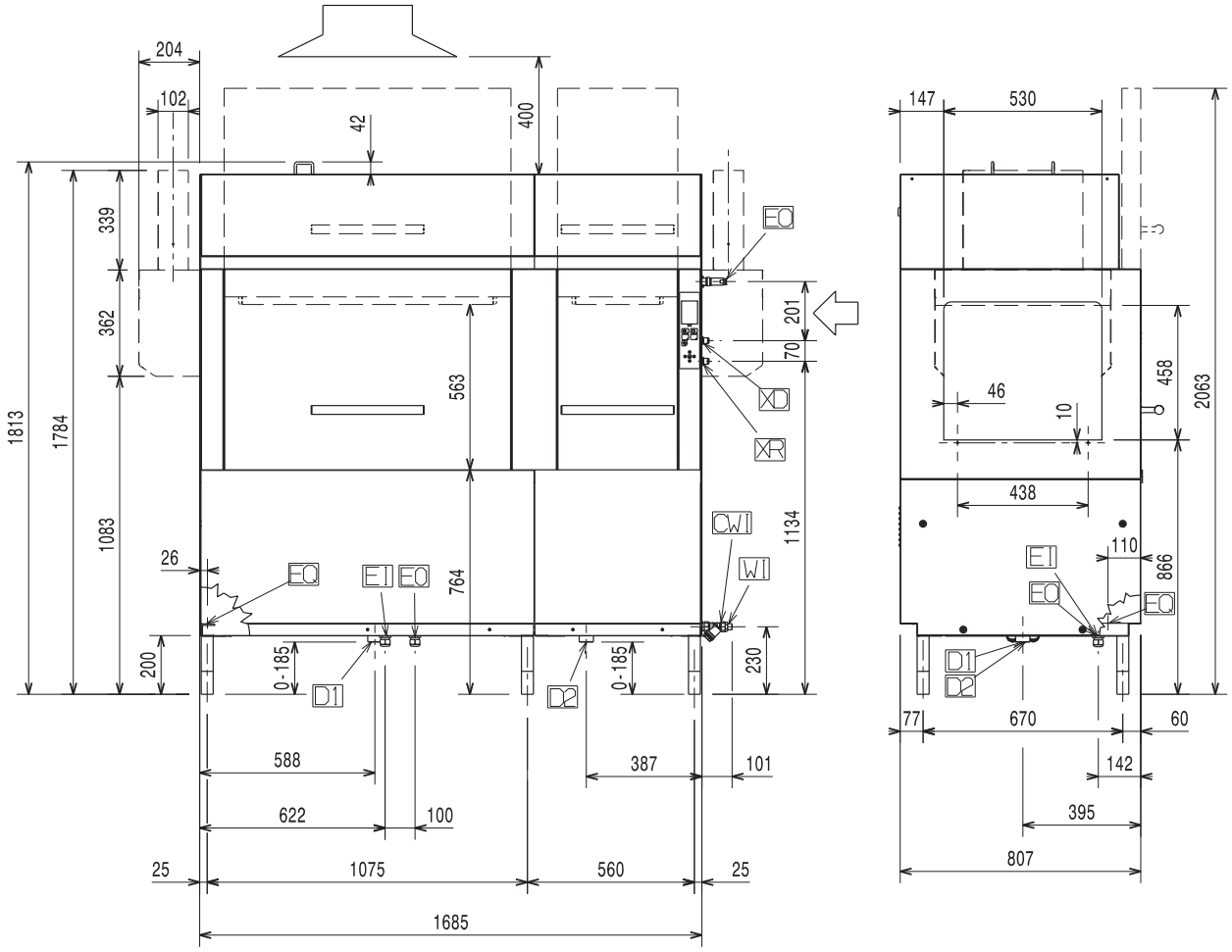


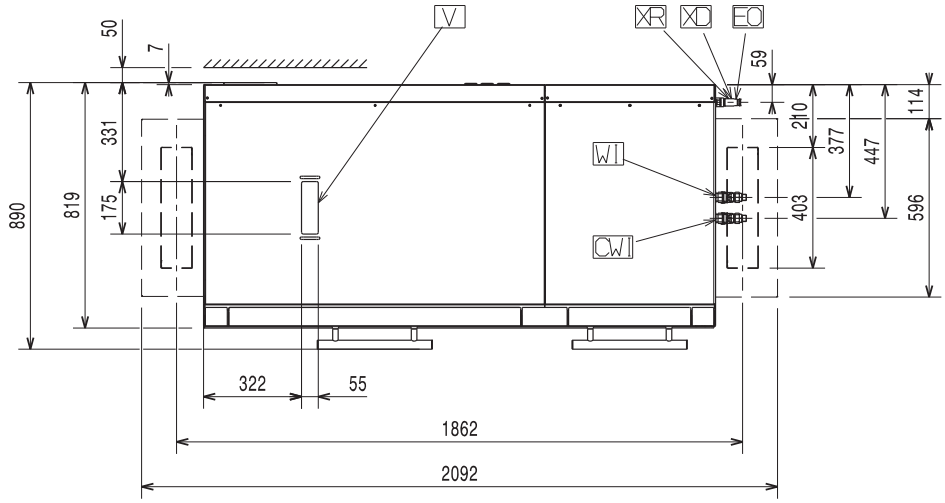


LEGEND

CWI	Cold water inlet (3/4in G)
D	Drain (1 1/2in G)
EI	Electricity Inlet
EO	Electricity Outlet
EQ	Equipotential screw
V	CU steam outlet
XD	Pipe inlet for detergent
XR	Pipe inlet for rinse aid
WI	Water inlet (3/4in G)

Installation diagram - rack-type dishwasher, 250 right (ECRT250RA-NRT200RA6/ECRT250RAA-NRT250RAA6)





LEGEND

CWI	Cold water inlet (3/4in G)
D	Drain (1 1/2in G)
EI	Electricity Inlet
EO	Electricity Outlet
EQ	Equipotential screw
V	CU steam outlet
XD	Pipe inlet for detergent
XR	Pipe inlet for rinse aid
WI	Water inlet (3/4in G)

F7 Installation of rack handling systems (non-motor-operated)

CAUTION!

Machine installation operations must only be carried out by specialized Technicians provided with all the appropriate personal protection equipment (safety shoes, gloves, glasses, overalls, etc.), tools, utensils and ancillary means.

IMPORTANT!

Work on the electrical equipment must only be carried out by a qualified electrician.

The Manufacturer provides for the possibility of connecting the rack-type dishwasher to rack handling systems included in the Electrolux Professional S.p.A. product catalogue, with the possibility of obtaining various configurations.

The arrangements for the mechanical and electrical connections provided for on the rack-type dishwasher are described below: for further details on the various types of rack handling system couplings, consult the instructions supplied with the specific handling system installed.

These arrangements are suitable for fitting non-motor-operated rack handling systems (e.g. rollerways, tables, etc.).

F7.1 Arrangement for mechanical connection (only for Electrolux rack handling system)

- Remove the splash guard panel “A” (Figure 11).
- Use the 4 holes, with incorporated nuts (M6), “B” to connect the rack handling system to the dishwasher (Figure 12-Figura 13).
- Refer to the instruction provided with the rack handling system to complete the installation.
- Apply silicone “C” between the dishwasher and the rack handling system (Figure 14).
- Make sure that there are not any water leakages.

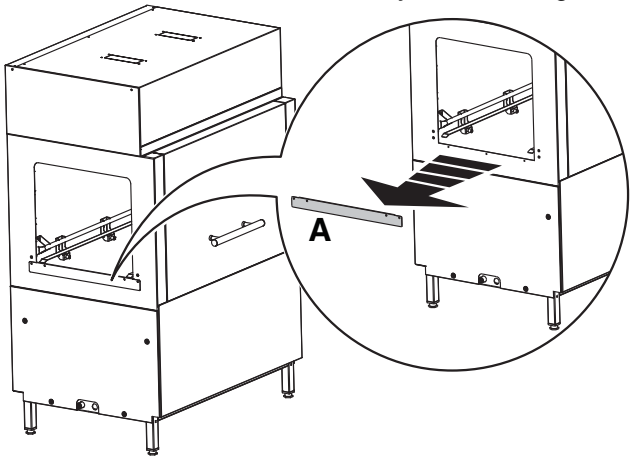


Figure 11Remove splash guard

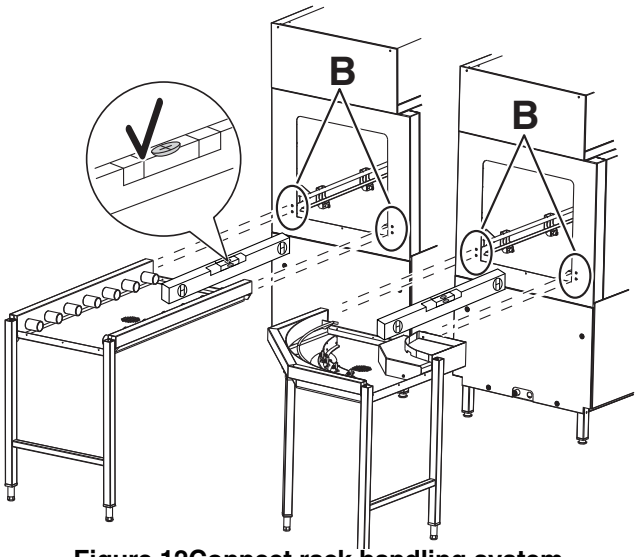


Figure 12Connect rack handling system

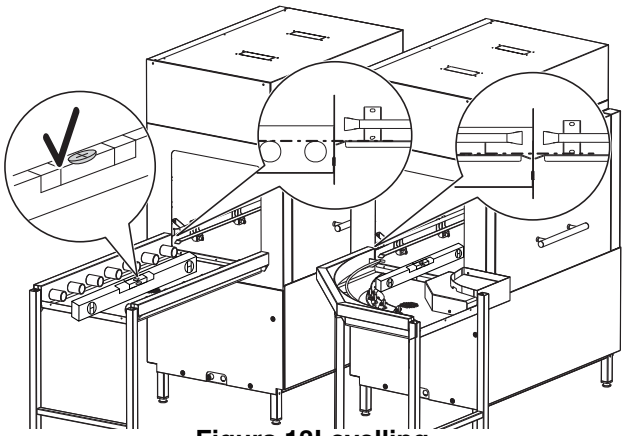


Figura 13Levelling

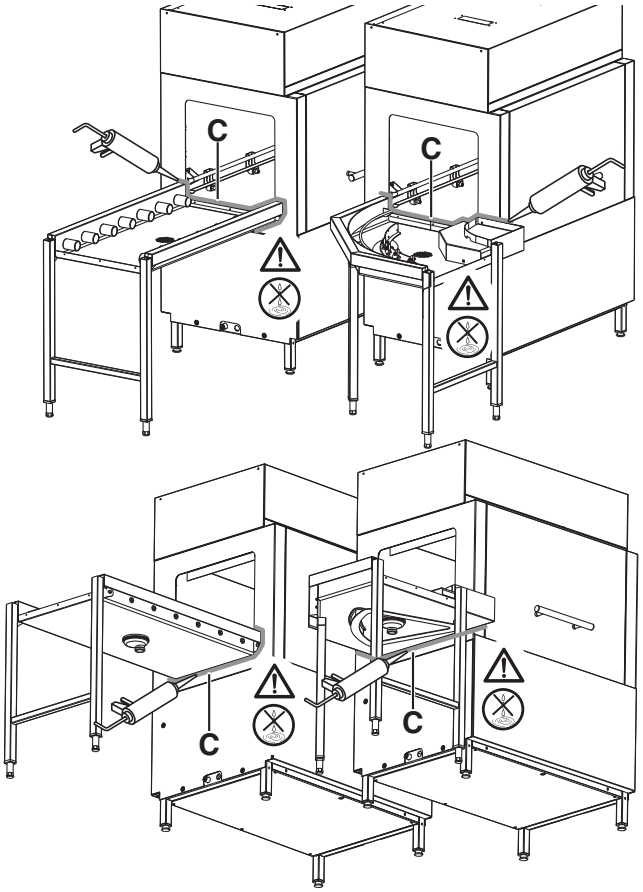


Figure 14Apply silicone

F7.2 Arrangement for mechanical connection

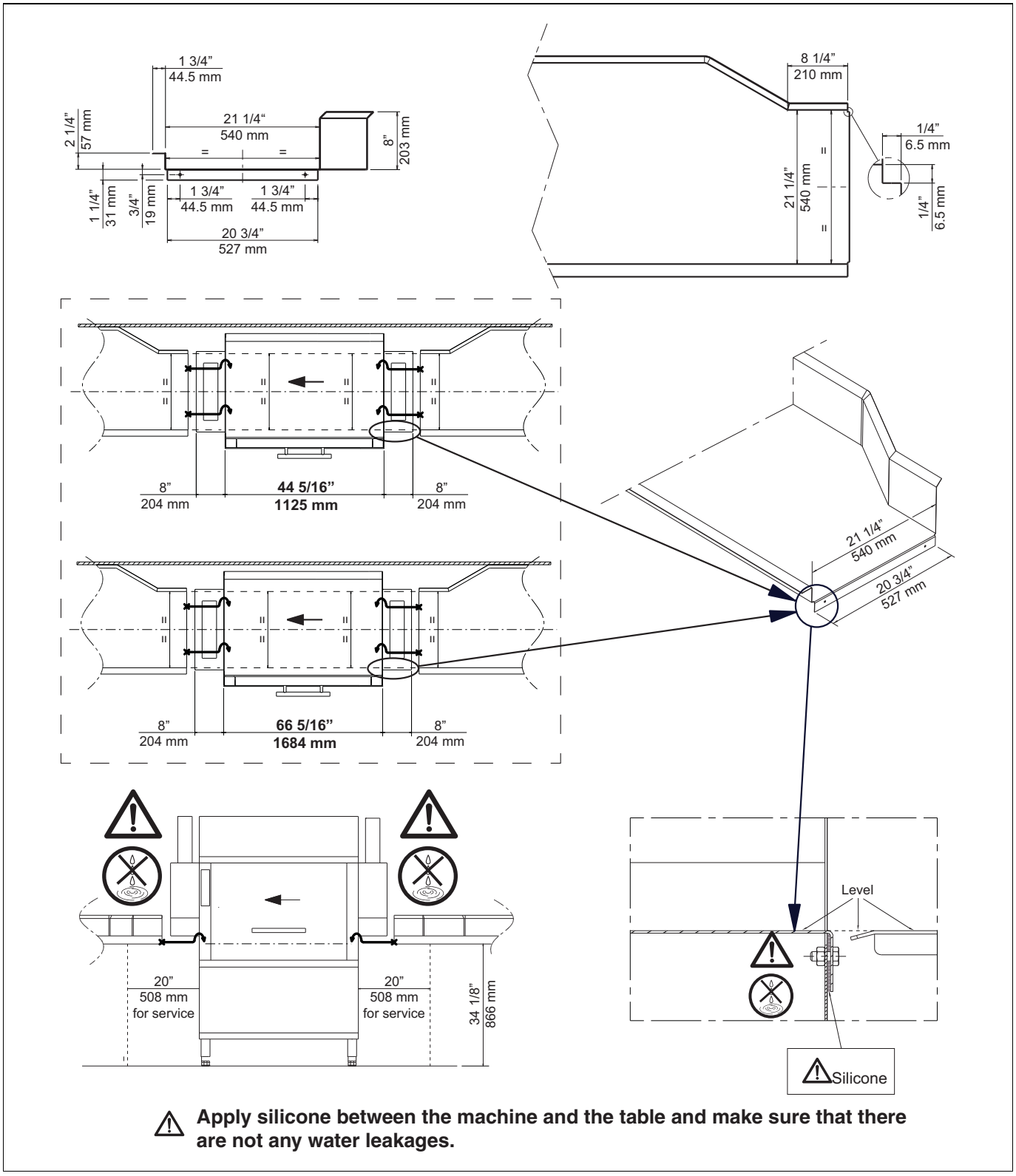


Figure 15 Installation diagram - Recommended table connection and fabrication

Place the end limit switch as shown below (Figure 16).

MANDATORY!

Install only Electrolux End Limit Switch (Figure 16).

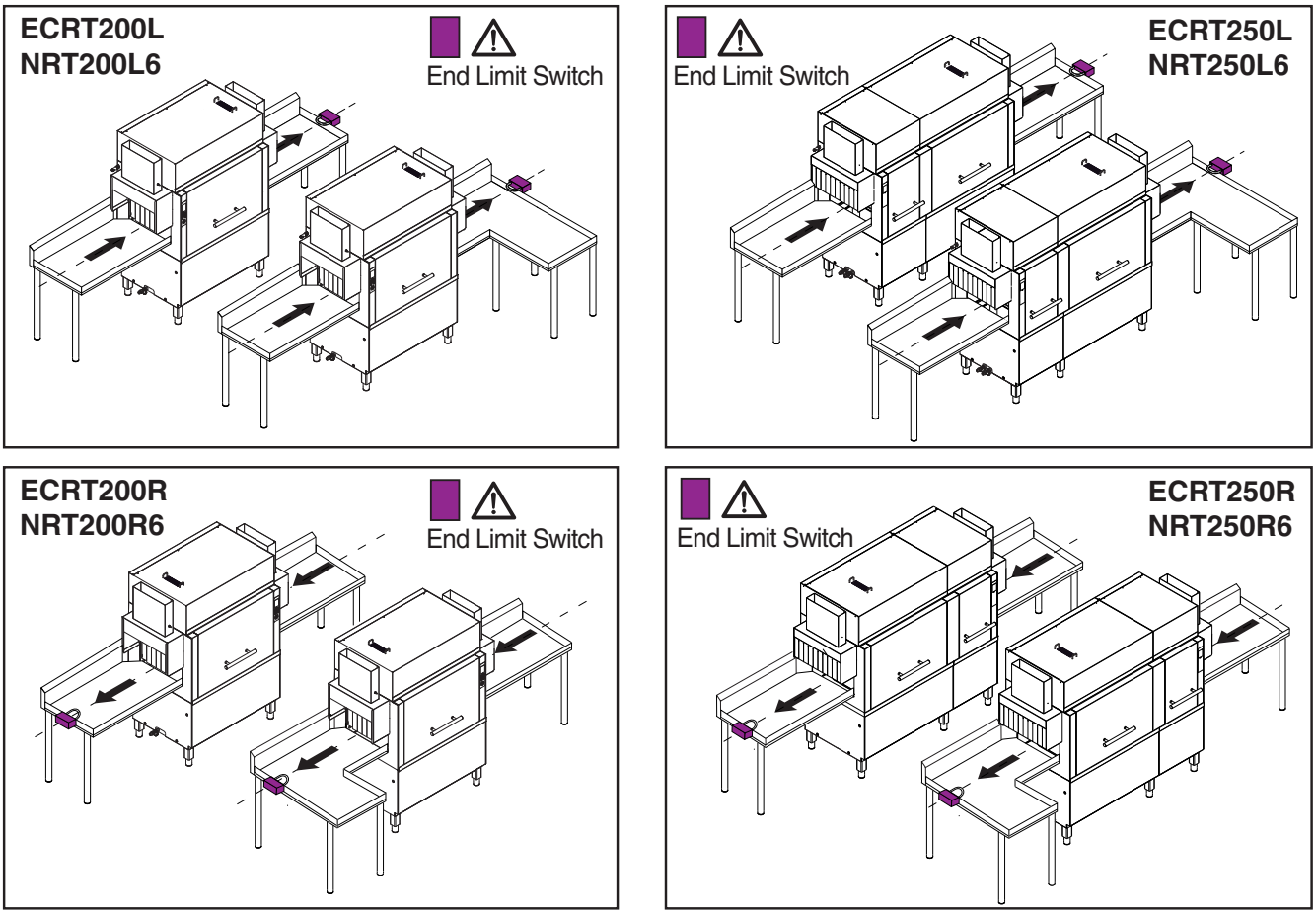


Figure 16 End limit switch positioning

F7.3 Prearrangement for electrical connection (Emergency switch/ End limit switch)

The machine is pre-configured for the installation of two emergency switches and for the installation of end limit switch.

IMPORTANT!

The connection cables must comply with the standards: CEI EN 60332, CEI EN 50265, CEI 20 - 35 e CEI 20 - 20.

Whatever the type of rack handling system to be connected to the dishwasher, proceed as follows:

1. remove the front panel “A” of the machine (Figure 17);
2. remove the cover of electrical panel “B” (Figure 17);
3. pass the cables for connection to the emergency switch and end limit switch, through the hole “C” (Figure 17) present near the foot of the machine;
4. enter the electrical panel “B” (Figure 17) through the special hole “D” (Figure 17) located in it;
5. connect the emergency stop (emergency switch) between points XT9-1 - bel and XT9-1 - ab of the XT9-1 terminal block (point 1 - Figure 17);
6. connect the table limit switches (End limit switch) between points 1 and 2 of the terminal block XT10 (point 2 - Figure 17);
7. Replace the electrical panel, its cover and the machine front panel.

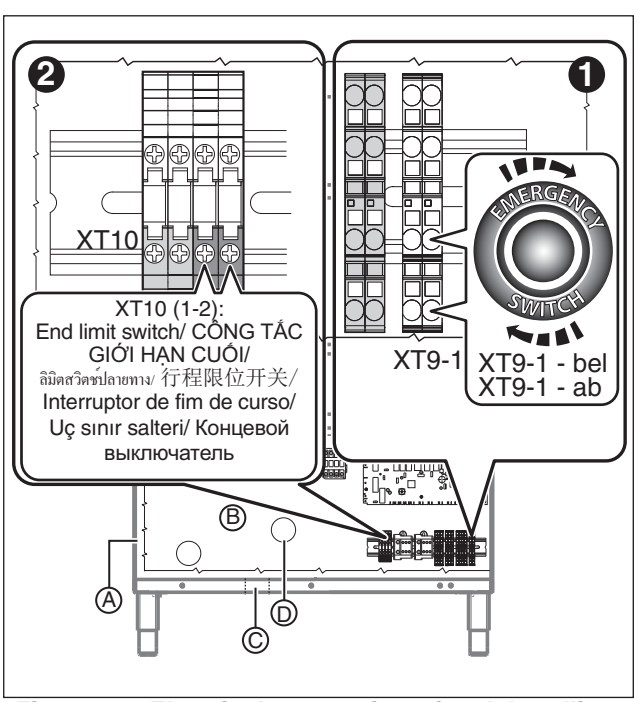


Figure 17 Electrical connection of rack handling systems

F7.4 Positioning of emergency switches

If rack handling systems are connected at the infeed or outfeed of a rack-type dishwasher, install on such systems emergency switches that are clearly visible and identifiable and easily accessed by the operator “R” (Figure 18) who must use them.

Described below are possible couplings of dishwashers “L” (Figure 18) with rack handling systems “M”, with the corresponding positions of the emergency switches “E” and work stations “R” (Figure 18).

IMPORTANT!

The emergency switches installed on the machine do not exempt operators from diligent and careful use of the machine. The function of these devices guarantees prompt intervention in case of emergency.

IMPORTANT!

Operators must know the position of the emergency switches installed on the machine. The paths to reach and operate them must be kept free of obstacles.

IMPORTANT!

Emergency switches must be installed, otherwise the machine cannot operate (see wiring diagram).

IMPORTANT!

Anyone detecting a danger for persons must immediately operate one of the emergency stops; the same applies in case of operation anomalies and/or damage to parts of the machine requiring it to be stopped immediately.

F7.5 Emergency stop reinstatement

When an emergency switch is operated, restart the machine only after making sure that:

- the cause requiring operation of the emergency switch has been eliminated;
- restarting machine operation does not involve any hazard.

If the EMERGENCY SWITCH is operated during machine operation, the entire machine is deactivated.

To reinstate machine operation, proceed as follows:

- release the previously operated red emergency button, turning or pulling it in order to disconnect its interlock;
- restart the machine according to what is described in par. J3 “Daily activation of machine”.

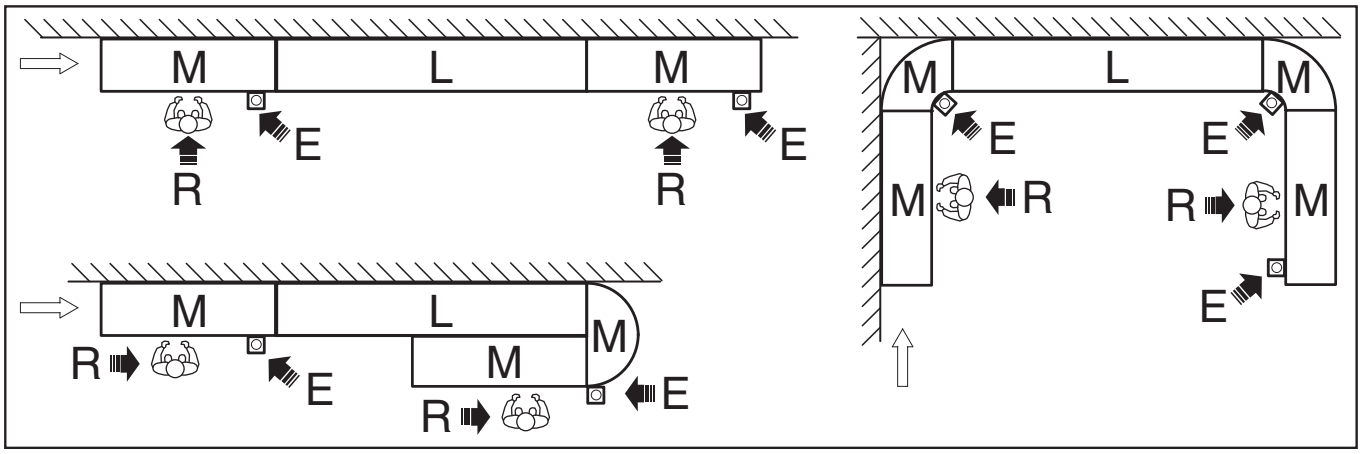


Figure 18 Examples of dishwasher and rack handling system couplings

F8 Electrical connections

Connection to the power supply terminals must be carried out in conformity with the current regulations and provisions in the country of use.

IMPORTANT

Observe the same sequence of the phases on both supply terminals; tighten the cables properly using a maximum torque of 6 Nm.

IMPORTANT!

The connection cable must be H07RN-F type, oil proof.

IMPORTANT!

Work on the electrical systems must only be carried out by a qualified electrician.

- Make sure the machine power supply voltage specified on the rating plate (Table 1) matches the mains voltage.
- Make sure the system power supply is arranged and able to take the actual current load and that it is executed in a workmanlike manner according to the regulations in force in the country of use.

To connect the power cable to the equipment, proceed as follows:

- remove the front panels of the wash zone (Figure 19);
- pass the power cables through holes as shows in the picture and secure it with the special cable gland (point 1- Figure 19);
- connect the power cable to the terminal blocks as indicated in the wiring diagram attached to the equipment (point 2 - Figure 19);

IMPORTANT!

All electrical interventions ahead of the machine must be carried out by qualified electricians and with the power to the equipment being wired disconnected.

- **External ventilation hood motors connection**
  If you need to connect external ventilation hood motors, install an auxiliary relay or contactor between terminal blocks XT10-3 and XT10-4 (For the configuration see Figure 20).
- Close the front panels of the wash (Figure 19).

IMPORTANT!

All electrical interventions ahead of the machine must be carried out by qualified electricians and with the power to the equipment being wired disconnected.

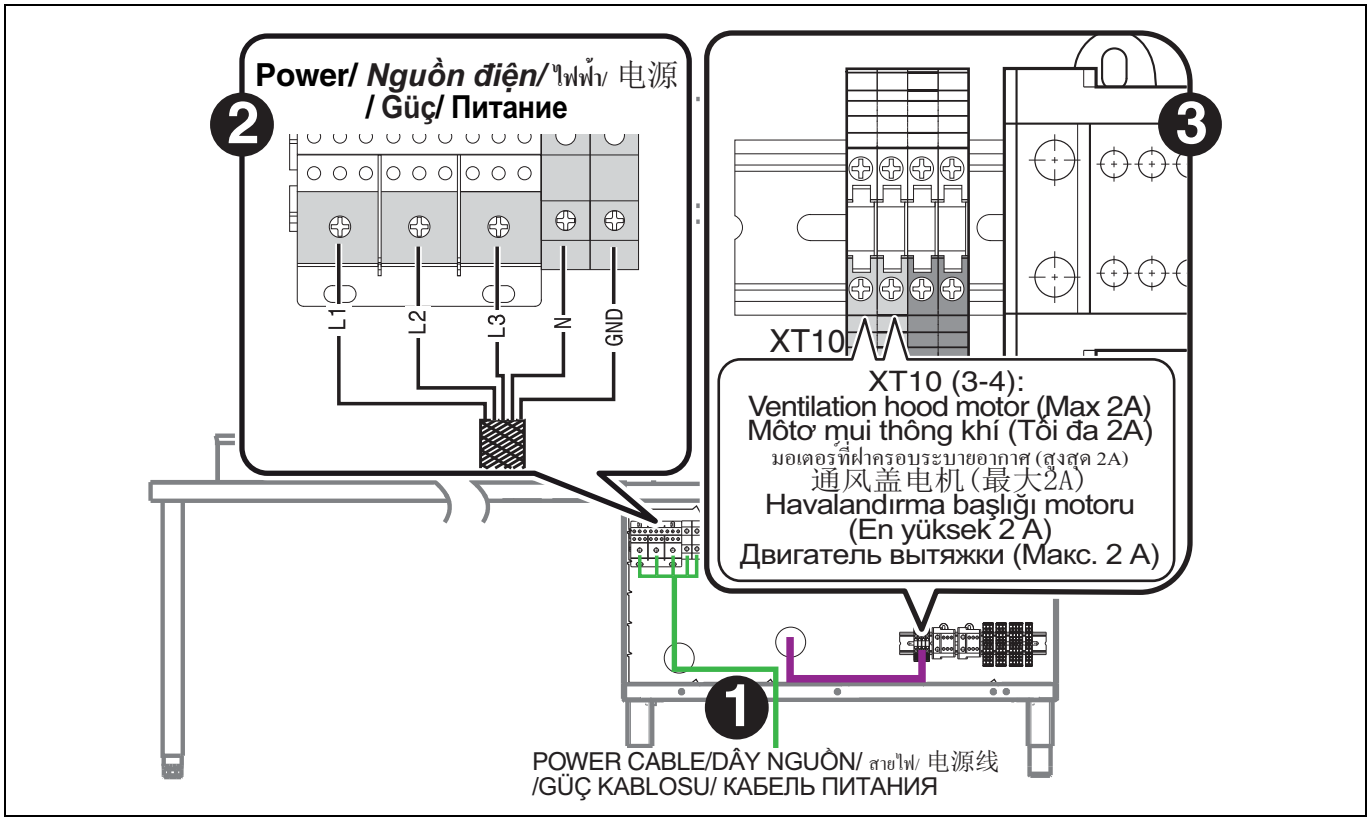


Figure 19 Electrical connections diagram

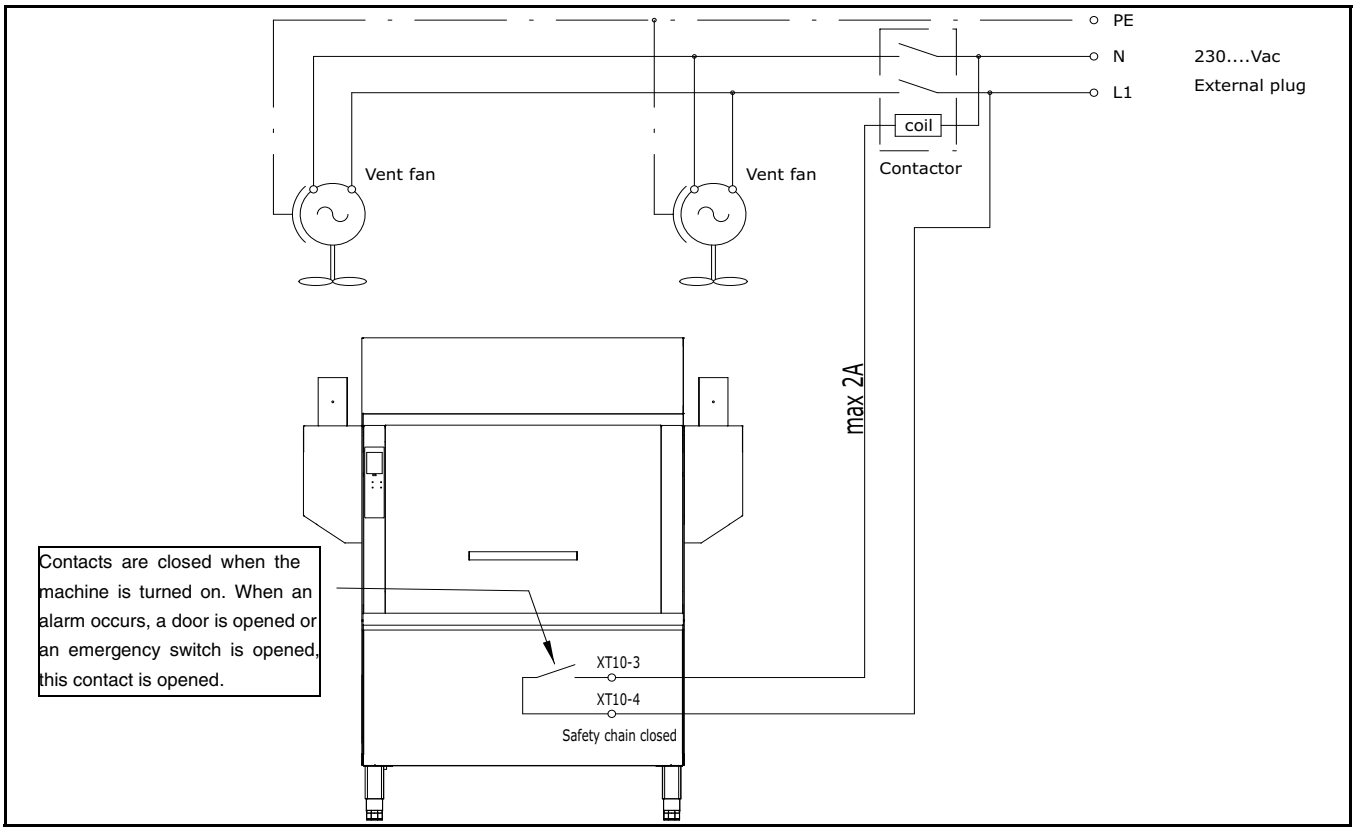


Figure 20 Vent Fan connection

F9 Installation of detergent/rinse aid dispensers

The machine is pre-configured for installation of detergent and rinse aid dispensing devices.

The dispensers must be installed in a way that does not compromise machine operation or safety.

IMPORTANT!

Do not start the machine if the dispenser devices do not meet the safety requirements of EC Directives or current regulations in the country of use.

CAUTION!

Contact with chemical substances (e.g. detergent, rinse aid, scale remover, etc.) without taking appropriate safety precautions (e.g. personal protection equipment) can involve exposure to chemical risk and possible damage to health. Therefore always refer to the safety cards and labels on the products used.

CAUTION!

The use of "foaming"/non-specific detergents or in any case detergents used in different ways from that prescribed by the manufacturer, can cause damage to the dishwasher and compromise washing results.

F9.1 Arrangement for water connection

Described below are all the possible plumbing connections that can be made in the machine for installing detergent or rinse aid dispensing devices.

IMPORTANT!

Carry out all the following plumbing connections with particular care, in order to avoid any leaks of liquid inside the machine and near the electrical connections.

IMPORTANT!

Faulty plumbing connections can cause low machine performance due to pressure losses in the system.

F9.1.1 Detergent dispenser

The left or right side panels of the dishwasher have a "P" injector [6mm OD] (Figure 22) for connecting the detergent dispenser.

To connect the dispenser, carefully carry out the following instructions:

- unscrewing the "R" fitting (Figure 22) from the "P" injector;
- connect the detergent pipe, coming from the external dispenser, on the "R" fitting (Figure 22);
- screw the "R" fitting tightly to the "P" injector paying careful attention to any potential plumbing leaks.

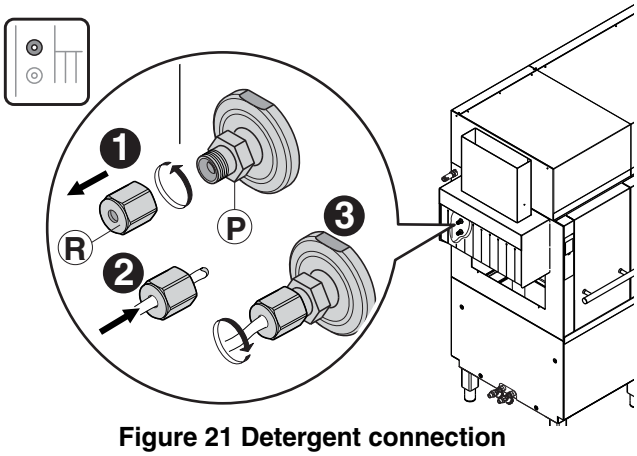


Figure 21 Detergent connection

F9.1.2 Rinse aid dispenser

The left or right side panels of the dishwasher have a “T” injector [6mm OD] (Figure 22) for connecting the rinse aid dispenser.

To connect the dispenser, carefully carry out the following instructions:

- unscrewing the “U” fitting (Figure 22) from the “T” injector;
- connect the rinse aid pipe, coming from the external dispenser, on the “U” fitting (Figure 22);
- screw the “U” fitting tightly to the “T” injector paying careful attention to any potential plumbing leaks.

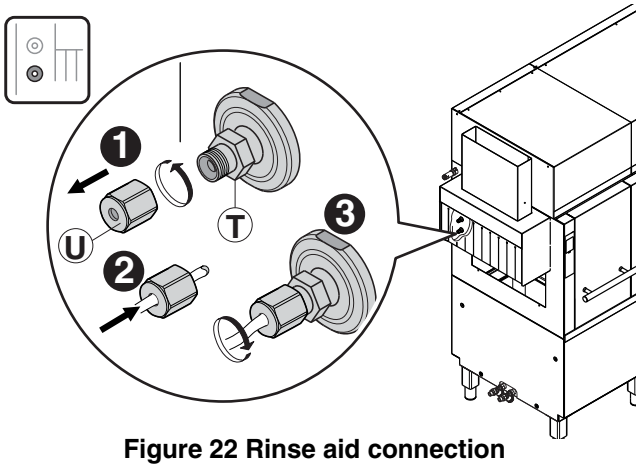


Figure 22 Rinse aid connection

F9.2 Arrangement for electrical connection

IMPORTANT!
Do not make direct connections on the printed circuits.

IMPORTANT!
The connection cables must comply with the standards: CEI EN 60332, CEI EN 50265, CEI 20 - 35 e CEI 20 - 20.

For the electrical connection “E” of the dispenser devices, proceed as follows:

- access at the electrical connection on the upper panel (Figure 23);
- unscrew the connector (point “1” - Figure 23);
- remove the black plug (point “2” - Figure 23);
- access at the contacts, unscrew the connector (point “3” - Figure 23);
- pass the cable through the all components of the connector and connect the wires respecting the correct sequence of the contacts (point “3” - Figure 23);
- reassemble the connector (point “4” - Figure 23) and screw it on the machine in position “E” (Figure 23).

IMPORTANT

The rinse-aid signal (pin 1 and 2; 230 Vac, 30VA max) is present for the duration of the rinse phase. The detergent signal (pin 5 and 6; 230 Vac, 30VA max) is present for the duration of the wash pump working.

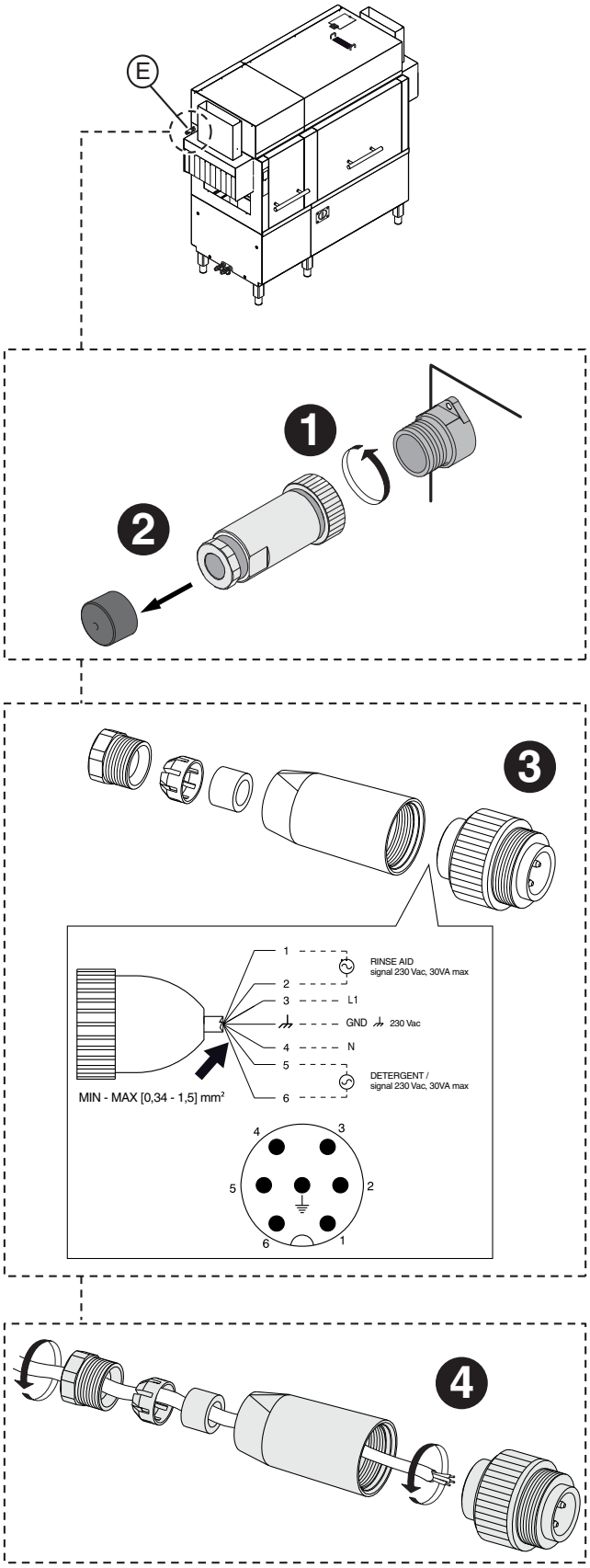
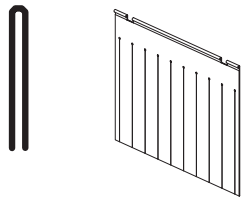
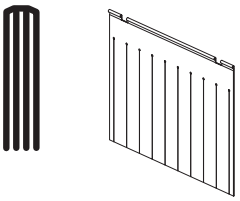
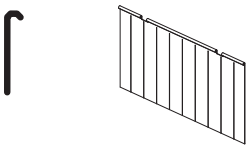


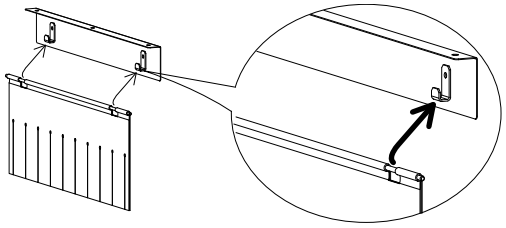
Figure 23 Electrical connection of external detergent/rinse aid dispensers

F10 Fitting curtains

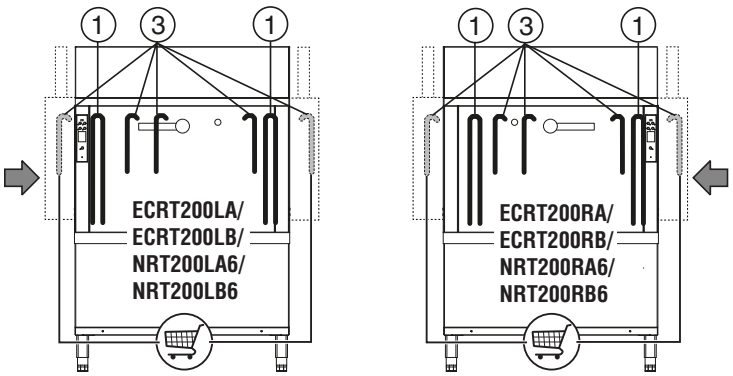
With the machine switched off and cold, fit or refit the curtains as illustrated below. The machines are represented in the assembly diagrams firstly in the version with left rack loading and then in the version with right rack loading.

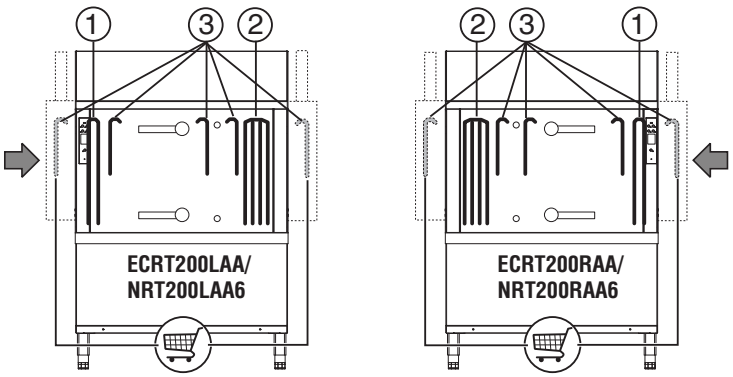
Types of curtains on the machine		
Double long (1)	Quadruple long (2)	Single short (3)
		

Important:
fasten the curtains with the flat part against the hook.

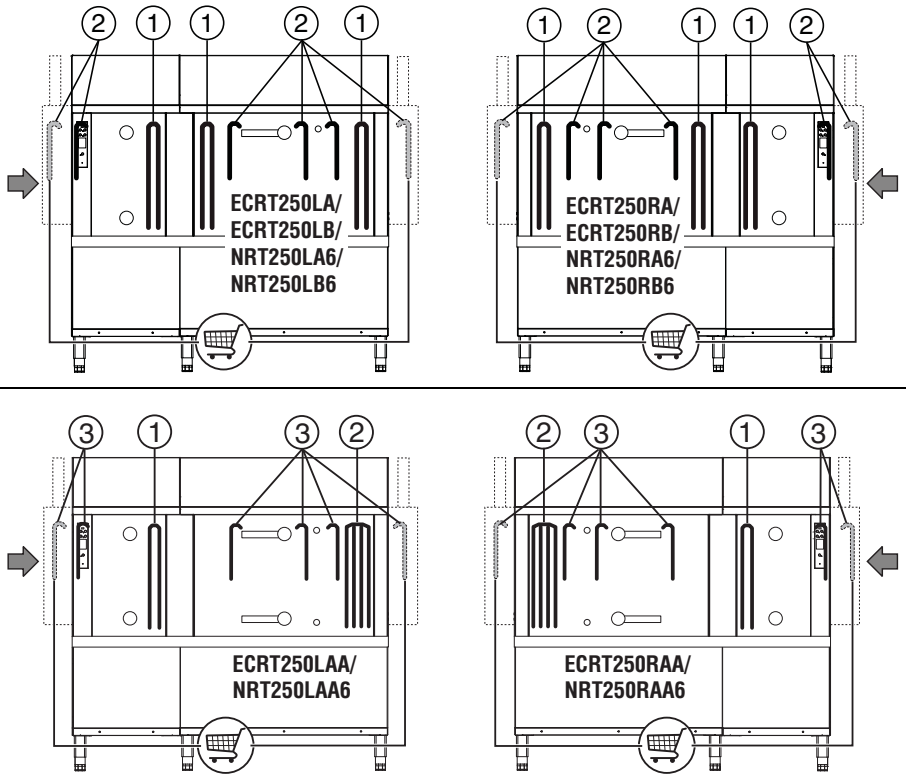


Rack-type dishwasher - 200 racks/h





Rack-type dishwasher - 250 racks/h



Drying zone (if provided for)

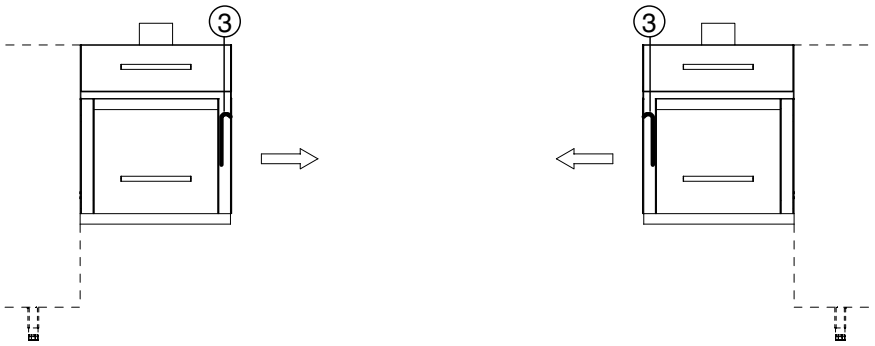
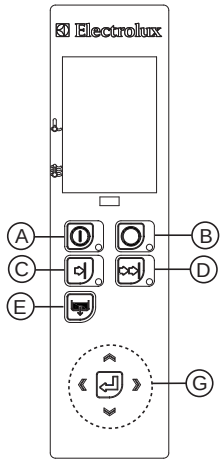


Figure 24 Diagram of curtain positioning on compact machines

G DESCRIPTION OF CONTROL PANEL

The possible control panel configurations for compact rack-type dishwashers are as follows:



LEGEND
A = On/Off
B = Stop
C = Start at low speed
D = Start at high speed
E = Drain or clean
G = Service push buttons

Table 2 Control panel

Described below are all the single keys and functions present in the control panel listed above.

G1 Basic controls

On/Off

The key is used to switch on and off the equipment; if machine is on, the LED key is on as well, if the machine is off, the LED key flashes.

IMPORTANT

When the machine is off using the key On/Off (A - Table 2), power is still present inside the unit and some electrical internal components of the machine still have power to them; switch off the terminal power at the main circuit breaker or fuse panel and place a red tag at the disconnect switch to set work is being done on that circuit before servicing.

Start at low speed

This key is used to start a wash cycle at low speed. The LED of the key low speed (C - Table 2) is off when the machine is not ready to perform a washing cycle, flashes when it is ready and is on when running a low speed washing cycle. This speed is recommended for washing heavily soiled dishes. We recommend using low speed while washing glasses in order to obtain the best results.

Start at high speed

This key is used to start a wash cycle at high speed.

The LED of the key high speed (D - Table 2) is off when the machine is not ready to perform a washing cycle, flashes when it is ready and is on when running a high speed washing cycle. This speed is recommended for washing light to medium soiled dishes.

Stop

The key can be pressed to stop the washing cycle. The machine returns to “READY”. The LED of the STOP (B - Table 2) key flashes when the machine is running a washing cycle, otherwise it is off.

Drain or Clean

This button has two different functions: starting the drain or cleaning cycle at end of work (according to the parameters set in the machine), or doing a tank water change. When the On/Off button (A - Table 2) is pressed, the display shows 2 options: shutdown and drain or cleaning; press the DRAIN or CLEAN button (E - Table 2) to do a drain or cleaning cycle.

When the machine is working, but a tank water change is necessary, this can be done by keeping the DRAIN OR CLEAN button (E - Table 2) pressed for 5 seconds.

Service push buttons

These keys are used to access the programming mode of the machine; refer to the service manual for details.

H1 Preliminary checks, adjustments and operational tests

IMPORTANT!

These operations must only be carried out by specialized technicians provided with adequate personal protection equipment (e.g. safety footwear, gloves, glasses, etc.), tools and suitable ancillary equipment.

H1.1 Electrical and plumbing checks

Before starting the machine:

- check correct connection of the electrical wires that feed the machine;
- make sure the power supply voltage and frequency match the data given in Table 1;
- check correct connection of the water supply and drain pipes (par. F6 “Plumbing connections”);
- make sure all the guards, safety devices and emergency switches are in place and efficient.

H1.2 Check the positioning of tank components

IMPORTANT!

The following operations must be carried out by operators provided with suitable personal protection equipment (e.g. protective gloves, etc.) with the machine switched off and cold.

H1.2.1 Check the fitting of filters and overflows

Make sure the tank drain grid “1”, overflow “2”, the flat filters “3” and box strainer “4” (Figure 25) are fitted in the prewash module, if present in the machine.

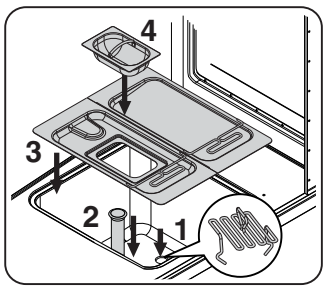


Figure 25 Prewash module tank filters

Make sure the tank drain grid “1”,overflow “2”, flat filter/s “3” and box strainer/s “4” (Figure 26) are fitted in the wash/rinse module.

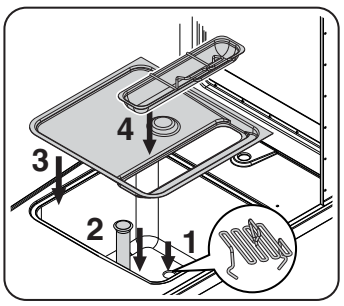


Figure 26 Wash/rinse module tank filters

H1.2.2 Check the fitting of arms and curtains

Make sure the upper and lower prewash (Figure 27), wash (Figure 28) and rinse (Figure 29) arms are correctly fitted.

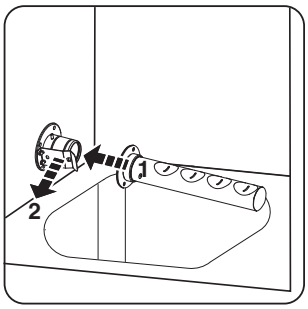


Figure 27 Prewash

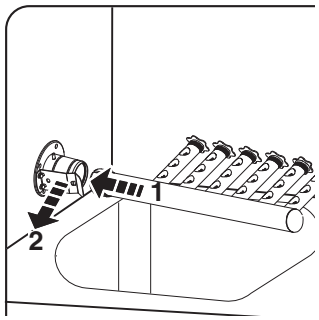


Figure 28 Wash

Also make sure the prewash and wash arm couplings are correctly locked and that the rinse arms are secured.

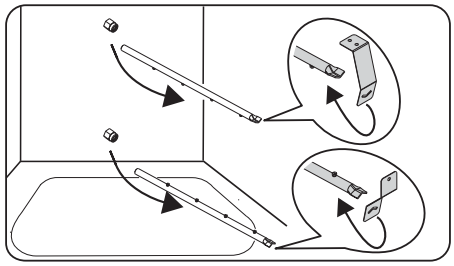


Figure 29 Rinse

Make sure all the types of curtains, provided for the machine model, are correctly fitted according to that indicated in par. F10 “Fitting curtains”.

Close the doors of the various machine modules only when all the parts previously described are correctly installed, then start the dishwasher.

H2 Starting

- Not insert racks inside the machine (point “1” - Figure 30).
- Open the water supply valves and switch on the main circuit breaker to allow power to the unit (point “2” - Figure 30).
- The display shows the frame “Motor current adjust - Ready Figure 30).
- Press the right button (point “3” - Figure 30).
-
- The display shows the frame “Motor current adjust - In progress Figure 30), in 3 minutes the Motor current adjust procedure should end.
- Press the On/ Off (point “3” - Figure 30). The machine is turning off.

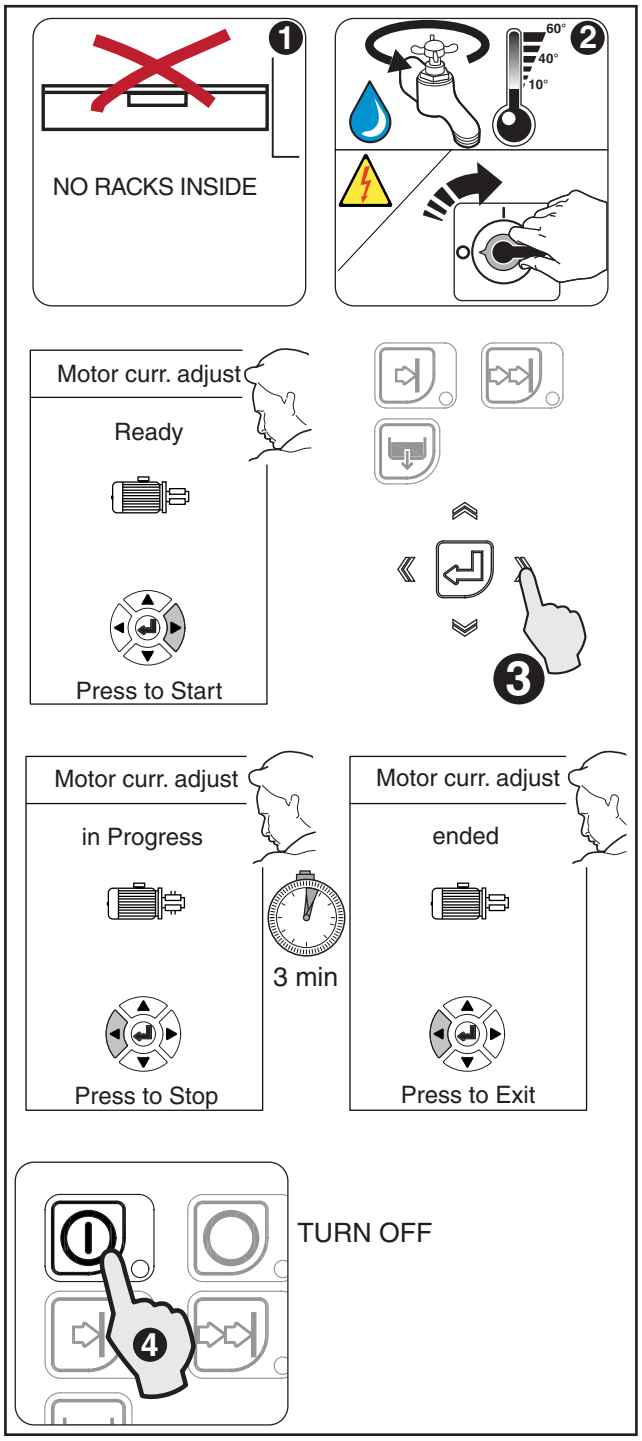


Figure 30 Motor current adjust

H2.1 Set the wash module temperature

Before you start the washing programme, you must measure the water inlet temperature to set the machine correctly.

- The factory setting is cold (10°C - 40°C), but if there is a hot water inlet hose (40°C - 60°C) you can supply the machine with hot water.
- Press the On/Off key (point “1” - Figure 31) to turn on the machine.
- Press sequentially (not more than 3 seconds between each press) the up, left, right and down buttons to access the Service menu (point “2” - Figure 31).
- Press the confirmation key to enter in the “Parameters” menu (point “3” - Figure 31).
- Press the DOWN arrows key one time to choose the “Generic function” menu and confirm it (point “4-5” - Figure 31).
- Press RIGHT arrows key six times (point “6” - Figure 31), looking for “supply water temp.” parameter.
- Set the correct value by pressing DOWN arrows key:
  - Cold (factory setting)
  - Hot
- Press the On/Off again to exit from the menu and turn off the machine.

IMPORTANT!

The prewash module uses cold water only. It is not necessary change any setting parameters.

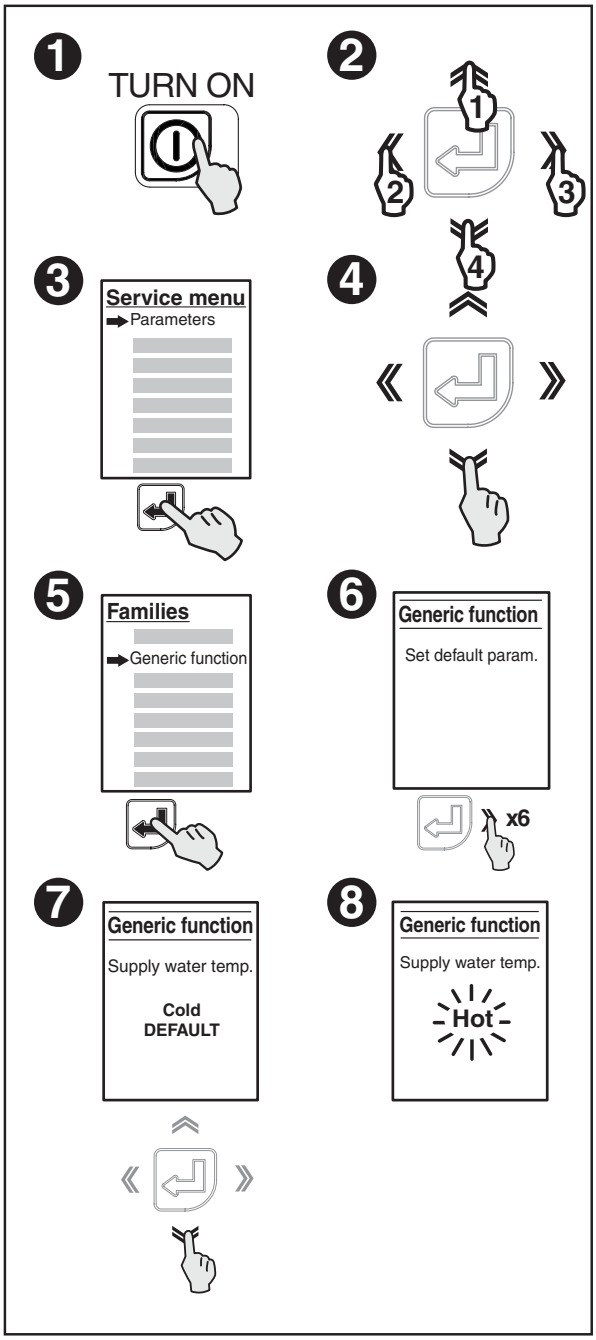


Figure 31 Setting wash temperature

H2.2 Warm up and washing cycle

- Press the On/Off (point “1” - Figure 32). The machine is turning on.
- The display shows the frames “2” and “3” in sequence (Figure 33).
- To start washing select the washing key (point “4” - Figure 32) for more details see J NORMAL MACHINE USE.

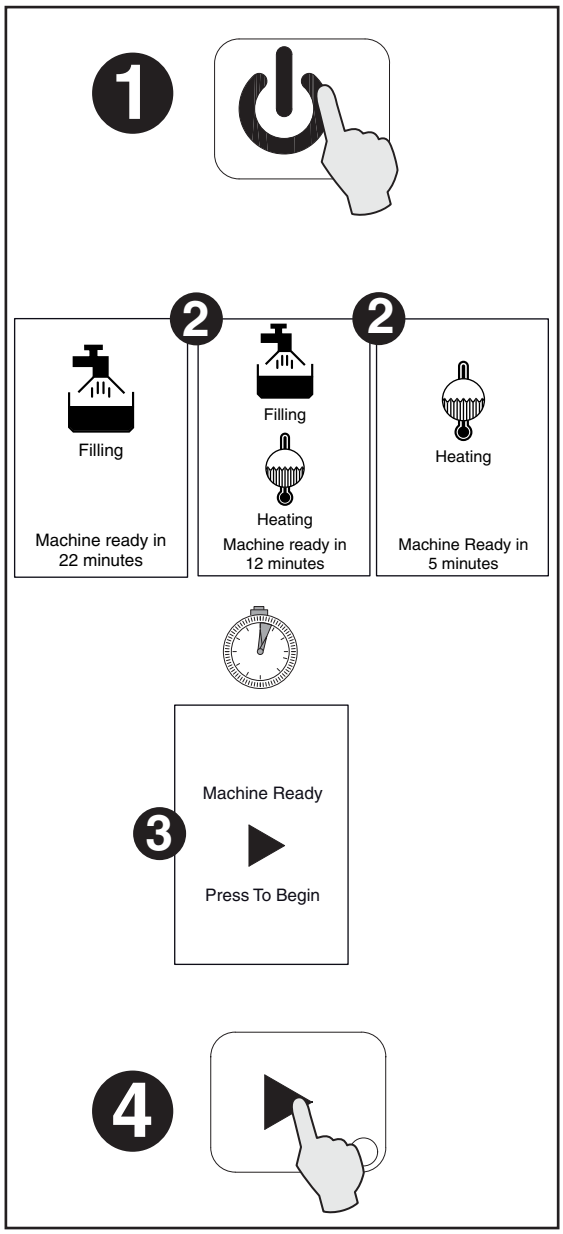


Figure 32 Starting

- **If the display shows “ALARM 111” (point “2” - Figure 33), the phase sequence of the incoming power feed wires at the machine terminal board isn’t correct.**
- **Switch off the main circuit breakers to turn off the power to the unit (point “3” - Figure 33).**
- **Correct the phase sequence of the incoming power feed wires at the machine terminal board (point “4” - Figure 33) and turn on the machine.**

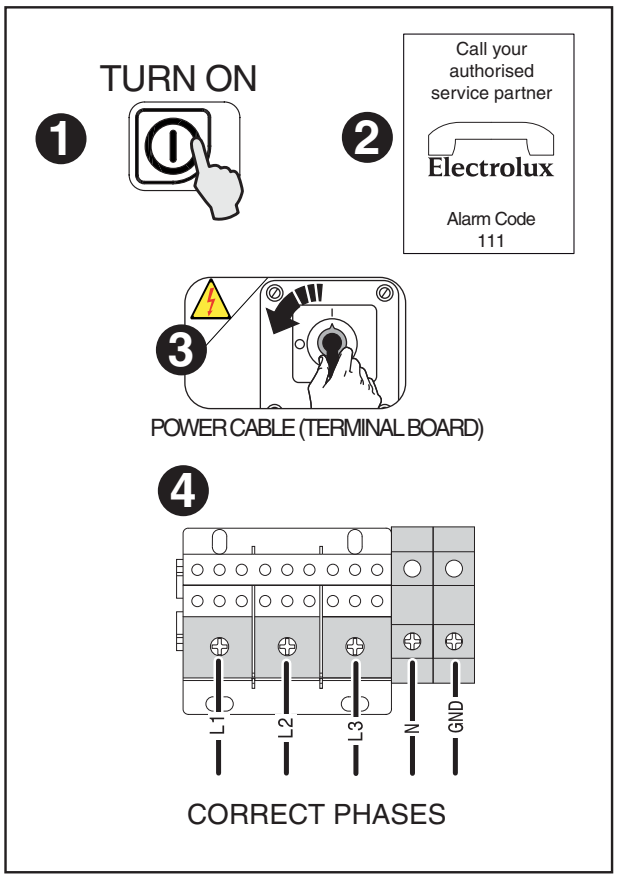


Figure 33 Starting with alarm 111

I GENERAL SAFETY RULES

I1 Introduction

The machines are provided with electric and/or mechanical safety devices for protecting workers and the machine itself. Therefore the user must not remove or tamper with such devices.

The Manufacturer declines any liability for damage due to tampering or their non-use.

I1.1 Protection devices installed on the machine

I1.1.1 Guards

The guards on the machine are:

- fixed guards (e.g. casings, covers, side panelling, etc.), fixed to the machine and/or frame with screws or quick-release couplings that can only be removed or opened with tools;
- interlocked movable guards (front panels) for access to inside the machine;
- access doors to the machine's electrical equipment, made from hinged panels openable with tools. The door must not be opened during machine movement, if inside the door there is equipment that is hazardous when live or under pressure.

IMPORTANT!

Several illustrations in the manual represent the machine, or parts of it, without guards or with guards removed. This is purely for explanatory requirements. Never operate the machine without the guards or with the safety devices deactivated.

I1.1.2 Safety devices

The machine has:

- interlocks on the front panels giving access to inside the machine;
- emergency stop push buttons (recommended) and end limit switches must be installed on the rack handling tables in case the racks exceed their travel.

I1.2 Safety signs to be displayed on the machine

PROHIBITION	MEANING
	**Do not oil, lubricate, repair and adjust moving parts.**
	**Do not remove the safety devices.**
	**Do not use water to extinguish fires (shown on electrical parts).**

DANGER	MEANING
	**DANGER OF CRUSHING HANDS**
	**DANGER OF BURNS**
	**DANGER OF ELECTROCUTION (shown on electrical parts with indication of voltage).**

WARNING!

Do not remove, tamper with or make the labels on the machine illegible.

I2 Decommissioning

When the machine is no longer to be used, make it unusable by properly disconnecting the incoming power and water supplies.

I3 Instructions for use and maintenance

Risks mainly of a mechanical, thermal and electrical nature are present in the machine.

Where possible the risks have been neutralized:

- directly, by means of adequate design solutions,
- or indirectly by using guards, protection and safety devices.

Any anomalous situations are signalled on the control panel display.

During maintenance several risks remain, as these could not be eliminated and which must be neutralized through specific behaviour and precautions.

Do not carry out any control, cleaning, repair or maintenance operations on moving parts.

Workers must be informed of the prohibition by means of clearly visible signs.

To guarantee machine efficiency and correct operation, periodical maintenance must be carried out according to the instructions given in this manual.

In particular, make sure to periodically check correct operation of all the safety devices and the insulation of electrical cables, which must be replaced if damaged.

IMPORTANT!

Machine maintenance operations must only be carried out by specialized Technicians provided with all necessary personal protection equipment (safety shoes, gloves, glasses, overalls, etc.), tools, utensils and suitable ancillary means.

WARNING!

Never operate the machine by removing, modifying or tampering with the guards and protection or safety devices.

IMPORTANT!

Before carrying out any operation on the machine, always consult the manual which gives the correct procedures and contains important information on safety.

I4 Improper use

Improper use is any use differing from that specified in this manual. During machine operation, other types of work or activities considered improper and that in general can involve risks for the safety of operators and damage to the system are not allowed.

Improper use includes:

- failure to disconnect the power supply with the main switch in “O” off position before carrying out adjustment, cleaning, resetting and maintenance operations;
- failure to disconnect the power supply with the main switch in off position “O” at the end of the day;
- lack of machine maintenance, cleaning and periodical checks;
- structural changes or modifications to the operating logic;
- tampering with the guards or safety devices;
- failure to use personal protection equipment by operators, specialized technicians and maintenance personnel;
- failure to use suitable accessories (e.g. use of equipment, ladders, etc., unsuitable for carrying out maintenance on equipment positioned inside the machine);
- keeping combustible or flammable materials, or in any case materials not compatible with or pertinent to the work, near the machine;
- incorrect machine installation (see chapter E “Installation and assembly”);
- placing in the machine any objects or things not compatible with washing or that can obstruct/damage the machine or persons or pollute the environment;
- non-compliance with the requirements for correct machine use;
- other actions that can cause risks not eliminable by the Manufacturer.

I5 Residual risks

The machine has several risks that were not completely eliminated from a design standpoint or with the installation of adequate protection devices.

Nevertheless, through this manual the Manufacturer has taken steps to inform operators of such risks, carefully indicating the personal protection equipment to be used by them.

Sufficient spaces are provided for during the machine installation phases in order to limit these risks.

To preserve these conditions, the corridors and areas around the machine must always be:

- kept free of obstacles (e.g. ladders, tools, containers, boxes, etc.);
- clean and dry;
- well lit.

For the Customer’s complete information, the residual risks remaining on the machine are given below; such actions are to be considered incorrect and therefore strictly forbidden.

RESIDUAL RISK	DESCRIPTION OF HAZARDOUS SITUATION	APPLICATION PHASE
Slipping or falling	The operator can slip due to water or dirt on the floor.	Normal use Maintenance
Catching, dragging or crushing	Catching or dragging of the operator or other persons in the drive, during the machine work phase, due to improper actions, such as: - placing an arm inside the machine to remove a stuck rack without stopping the machine by operating an emergency switch; - accessing the rack handling system without stopping the machine by operating an emergency switch. Use of improper clothing with loose parts (e.g. necklaces, scarves, shawls, ties, etc.) or long hair not gathered, which could get caught up in moving parts.	Normal use Maintenance Cleaning
Burns	The operator deliberately or unintentionally touches some components inside the machine or dishes at the outfeed without using gloves or without allowing them to cool.	Normal use Maintenance Cleaning
Shearing of upper limbs	The operator violently closes the front panels.	Normal use Maintenance Cleaning
Electrocution	Contact with live parts during maintenance operations carried out with the electrical panel powered. The operator intervenes (with a power tool or without disconnecting the power to the machine) lying down on the wet floor.	Maintenance
Falling from above	The operator intervenes on the machine using unsuitable systems to access the upper part (e.g. rung ladders, or climbs on it).	Installation Normal use Maintenance
Tipping of loads	During maintenance on the machine or the packing containing the machine with the use of unsuitable accessories or lifting systems or with load unbalanced.	Installation Maintenance
Chemical	Contact with chemical substances (e.g. detergent, rinse aid, scale remover, etc.) without taking adequate safety precautions. Therefore always refer to the safety cards and labels on the products used.	Installation Normal use Maintenance Cleaning

Table 3 Residual risks

J NORMAL MACHINE USE

J1 Correct use

Our appliances are designed and optimized in order to obtain high performance and efficiency. This equipment must only be used for its expressly designed purpose, i.e. washing dishes with water and specific detergents. Any other use is to be deemed improper.

J2 Characteristics of personnel trained for normal machine use

The Customer must make sure that personnel qualified for normal machine use are adequately trained and skilled in their duties, as well as ensuring his own safety and that of other persons.

The Customer must make sure his personnel have understood the instructions received and in particular those regarding work hygiene and safety in use of the machine.

J2.1 Characteristics of personnel enabled to operate on the machine

The Customer is responsible for ensuring that persons assigned to the various duties:

- read and understand the manual;
- receive adequate training and instruction for their duties in order to perform them safely;
- receive specific training for correct machine use.

J2.1.1 Operator qualified for normal use

He must have at least:

- knowledge of the technology and specific experience in operating the machine;
- adequate general basic education and technical knowledge for reading and understanding the contents of the manual,
- the capacity for a correct interpretation of the drawings, signs and pictograms;
- sufficient technical knowledge for safely performing his duties as specified in the manual;
- knowledge of the regulations on work hygiene and safety.

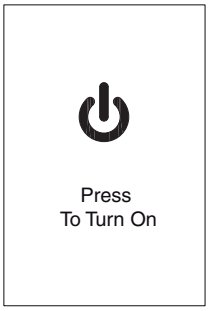
In the event of a significant anomaly (e.g. short circuits, wires coming out of the terminal block, motor breakdowns, worn electrical cable sheathing, etc.) the operator qualified for normal machine use must:

- immediately deactivate the machine by turning the main switch to “O” or operating the main emergency switch on the machine;
- close the machine water supply by shutting off the water.

- When the upload is finished, the display indicates that the machine is ending warming fase and appears the frame:

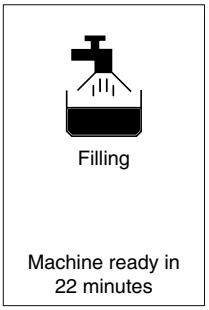
J3 Daily activation of machine

- Make sure the filters, arms and curtains are correctly fitted according to that indicated in par. H1.2 “Check the positioning of tank components” and F10 “Fitting curtains”.
- Make sure there are no foreign objects or materials not pertinent to the process on the conveyors and inside the machine.
- Make sure there are no persons extraneous to the work, or who are carrying out operations not compatible with dishwasher starting, in the immediate vicinity of the machine.
- Close the doors of the various machine modules.
- Open the water supply valves.
- The display shows the following message:

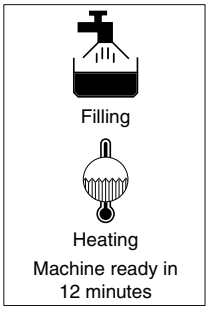


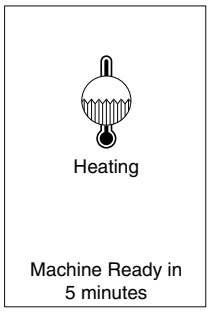
- Press the On/Off key (“A” - Table 2).

- The light of key "A" (Table 2) comes on indicating that the dishwasher is powered and is filling and heating water. During the filling phase the display shows:



- When booster heating element and tank heating element switch on, moves from the step of filling and heating and display shows:





During the filling and heating phases, the display also shows a counter indicating the missing minutes to the warm-up.

J3.1 Wash phase

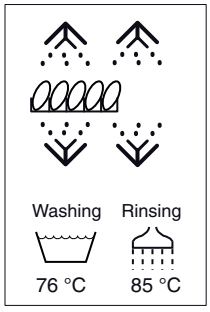
When the following message appears on the display:

the operator can start the wash phase.

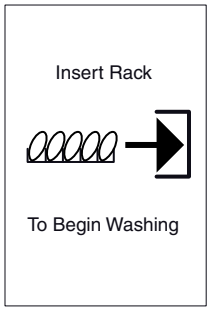
At the same time, the led of the start key flashes on the control panel.

To start washing by selecting the low speed or high speed keys (“C” or “D” - Table 2).

The machine starts washing and the display shows:



If racks are not inserted after a few seconds, the conveyor continues operating whereas the pumps stop and the display shows:

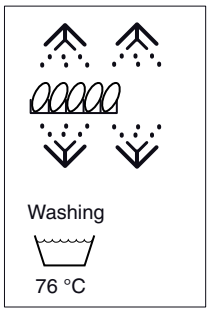


Clean and arrange the dirty dishes on the racks as indicated in par. J3.4 “Loading dishes on racks”.

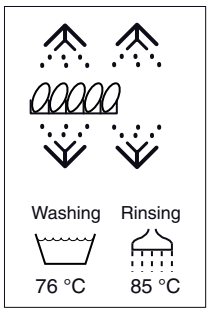
Insert a rack with dishes in the dishwasher infeed and allow the automatic feed system to take it to the various wash zones.

Depending on the washing area the baskets are, the machine can perform:

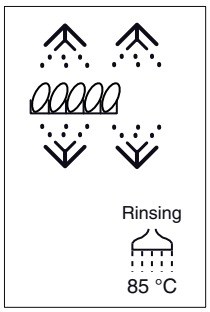
- wash phase



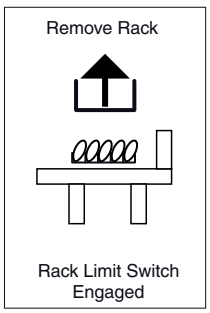
- washing and rinsing phase



- rinsing phase



When a rack reaches the end of the conveying system, the display shows:



and the motor conveyor and the pumps stop.

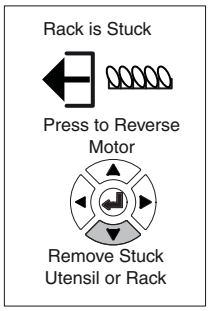
Remove the rack and load new racks with dirty dishes at the dishwasher infeed.

IMPORTANT!

The Customer must appraise, according to the current regulations in the country of use, the risk concerning manual handling of loads by operators, on the basis of ergonomic aspects and the weights to be handled, as well as the work loads.

J3.2 Rack jamming

If the dishes are not correctly loaded on the racks, jamming may occur inside the tunnel, and the display shows:

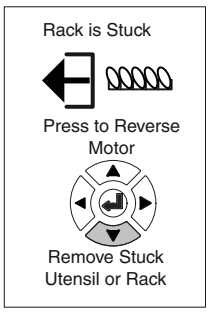


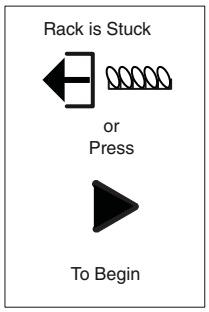
Open the doors and eliminate the cause of jamming.

If the rack is stuck and it is not possible remove it, close the door, press for some seconds the down button to operate the rack conveyor system in the opposite way and release the rack.

Open the door again and eliminate the cause of jamming.

Close the door. The display shows the below pictures in alternate way.





When you fix the cause of jamming, press the start button to restart the washing cycle.

J3.3 Wash phase stop

Press the **Stop** key (“B” - Table 2) to stop the wash phase.

Washing stops, and the machine stays on standby mode (Ready). Press a start key to restart washing.

J3.4 Loading dishes on racks

The rack-type dishwasher is suitable for washing dishes, glasses, cups, cutlery, trays, containers and receptacles in plastic and/or steel used for preparing, cooking and serving; as well as a wide variety of ceramic and/or metal cooking utensils. However it is advisable not to wash decorated dishes or place silverware in contact with other metals.

IMPORTANT!

All the dishes must be arranged in the special racks in order to be washed; do not place dishes directly on the rack conveyor system.

IMPORTANT!

The rack-type dishwasher must only be used for washing dishes, containers, etc. (see above) do not use the machine to wash animals or food (e.g. fruit, vegetables, meat or fish).

Before inserting the racks in the machine, clear the dishes of any food residuals and rinse them with cold or lukewarm water (at a max. temperature of 35°C), using a manual prewash spray.

IMPORTANT!

Failure to remove the residuals of detergent possibly used for manual prewash can cause malfunctioning of the dishwasher and compromise washing results.

Arrange the dishes on the racks, observing the following:

- Hollow containers such as cups, glasses, pots, etc., must be arranged with openings facing downwards, to avoid collecting water inside.
- Arrange dishes and pans on the racks following the feed direction of the rack conveyor system (Figure 34 / Figure 35).

IMPORTANT!

If pans are inserted as in point “1”- Figure 35, the curtains can catch lighter pans lifting them and causing a conveyor jam. While If pans are inserted as in point “2”- Figure 35, there is no risk of the curtains lifting the pans but it can cause cold water to transfer into the wash tank from the prewash on a 66" unit.

IMPORTANT!

To facilitate the flow of water leave a space of 100 mm between each pan.

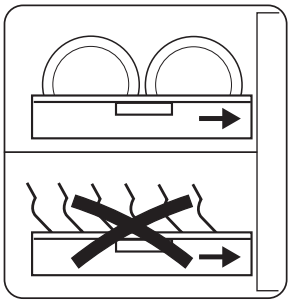


Figure 34 Positioning dishes

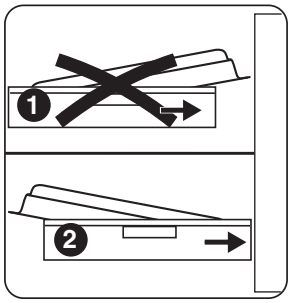


Figure 35 Positioning pans

- Position the trays on the racks with the long side in the feed direction of the conveyor system, leaving

the last rack position free, since a tray positioned there could collide with the wall of the machine (Figure 36).

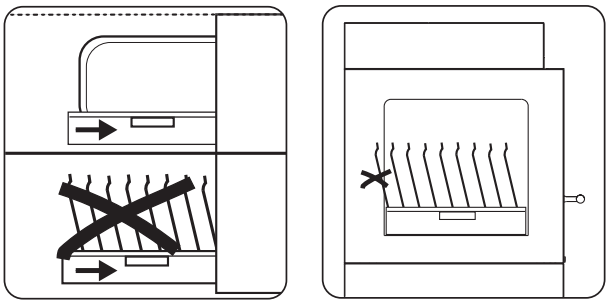


Figure 36 Positioning trays

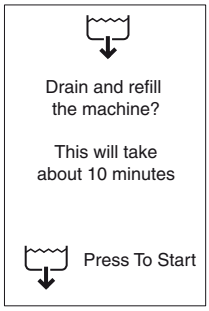
WARNING!
Keep limbs away from the rack entry zone - danger of crushing.

WARNING!
Inside the machine there are temperatures with risk of burns: if necessary, intervene with the machine cold or using suitable protection equipment (e.g. gloves).

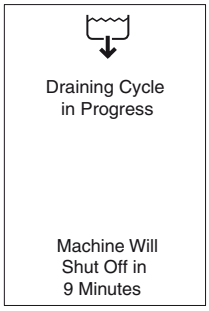
J3.5 Automatic tank water change

A tank water change may have to be done during the work phases. To start it, press the Drain or Clean key ("E" - Table 2) for 3 seconds

The display shows the following message:



Press the Drain or Clean key ("E" - Table 2) again to start the drain cycle and automatic refilling of water in the tank.

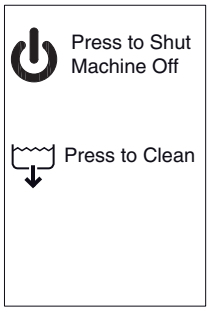


At the end the drain cycle and automatic refilling of water in the tanks, the machine will be ready for washing.

Press the low speed or high speed keys ("C" or "D" - Table 2) to restart the wash.

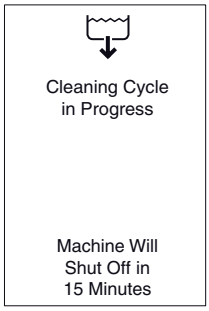
J3.6 Drain or Clean function

At the end of the daily use of the machine switch off by pressing On / Off key ("A" - Table 2). The display shows the following message:



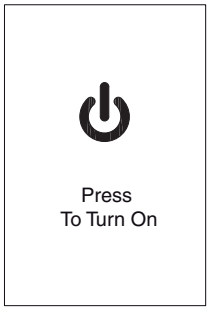
Press Drain or Clean key ("E" - Table 2) to perform the cleaning cycle with hot water.

The display shows the message

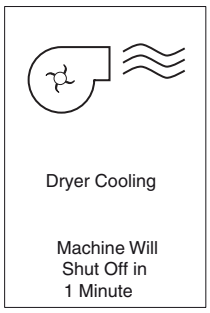


that also indicated the remaining time to the end of the current cleaning phase with hot water.

When the cycle ends, the machine turns off and the display shows the message:



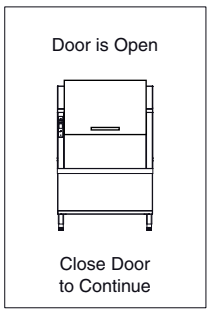
If a machine equipped with dryer is switched off without performing a Drain or Clean cycle, shutdown may be delayed 1 minute in order to carry out drying tunnel cooling. The display shows:

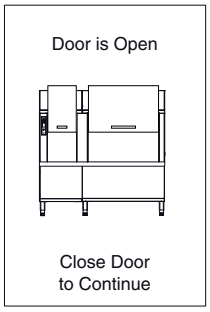


Wait for the machine to shut down, which occurs automatically, before turning the main switch to “0”.

J3.7 Door open

When one or more doors are open, the display shows:

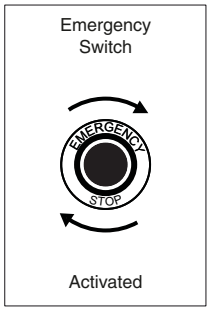




Close all open doors and restore normal dishwasher operation.

J3.8 Emergency stop

If the emergency stop push button is installed and activated, the dishwasher emits an acoustic signal and the display shows



Deactivating the emergency stop push button, the dishwasher will switch off.

Press the On/Off key (“A” - Table 2)

to restore normal dishwasher operation.

J3.9 Alarms and warnings

The machine manages two types of faults, depending on their seriousness.

There are more serious faults, defined as alarms, that cause stopping of the machine. When an alarm occurs, the display shows the number of the alarm in progress in a permanent way and an acoustic signal sounds.

List of possible documented machine alarms and warnings:

ALARMS	
Code	**Description**
11	The Air Gap was not completely filled within the max. filling time. This error will occur any time that water flow rate into the air gap is consistently lower than final rinse flow rate.
12	The pressure sensor on the air gap does not work correctly.
16	The booster water temperature is too high.
23	Electronics activate rinse pump but no flow is detected in the circuit. This error will occur when the rinse pump is on (or should be on) but no flow is detected.
27	Inverter has generated a fault.
31	The wash tank was not completely filled within the max. filling time.
32	The pressure sensor on the wash tank does not work correctly. The wash tank pressure sensor is connected to the MEC board.
34	The water temperature in the wash tank is too high.
37***	The wash pump contactor thermal protector has tripped.
51	The prewash tank was not completely filled within the max. filling time.
ALARMS	
Code	**Description**
52	The pressure sensor on the pre-wash tank does not work correctly. The pre-wash tank pressure sensor is installed in the MEC board.
89	The temperature on the user interface is too high. The maximum temperature is 85°C.
90	Communication problems between machine electronic boards.
109	The wash tank draining valve is open but the wash tank level stay higher than 290 mm for 10 seconds continuously (machine opens drain valve when the level is higher than 260 mm)

110	The pre-wash tank draining valve is open but the pre-wash tank level stay higher than 290 mm for 10 seconds continuously (machine opens drain valve when the level is higher than 260 mm)
111	Connection sequence of phases L1-L2-L3 on the main terminal block is wrong.
113	Temperature of the inverter is too high.

***: When these faults occur in machines without pre-wash, the machines stop and the display shows the number of the alarm that occurred.

If these faults occur in machines with pre-wash, the machines do not stop but continue the normal operations; the display shows the message indicating operation status alternating with a message specifying the number of the fault in progress.

If an alarm occurs, a specialized technician will be required in order to eliminate the cause of the alarm and restore normal machine operation.

**: There are less serious faults, defined as warnings, that signal a malfunction but which do not cause stopping of the machine. In fact, the machine will continue to carry out the normal operations, even if there may be a decrease in washing efficiency. In any case, a specialized technician will be required in order to eliminate the cause of the fault and restore normal machine operation.

These alarms prevent the water in the booster or in the tank from reaching the correct working temperature.

The display shows the following message, which indicates the current booster and tank temperature:

BOOSTER	TANK
Call your authorised service partner Electrolux Rinsing 60°C	Call your authorised service partner Electrolux Washing 60 °C

J4 Machine cleaning

Cleaning must be carried out after every day of use. Use hot water, a neutral detergent/detersive if necessary, and a soft brush or sponge. If another type of detergent is used carefully follow the manufacturer's instructions and observe the safety rules given in the information cards provided with the product or substance.

In order to reduce the environmental impact of pollutant substances, clean the equipment (externally and internally where necessary) with products that are more than 90% biodegradable.

IMPORTANT!

Do not wash the appliance using direct or high pressure water jets.

CAUTION!

Do not use steel wool or similar material to clean s/steel surfaces. Do not use detergents containing chlorine.

CAUTION!

Contact with chemical substances (e.g. detergent, rinse aid, scale remover, etc.) without taking appropriate safety precautions (e.g. personal protection equipment) can involve exposure to chemical risk and possible damage to health. Therefore always refer to the safety cards and labels on the products used.

J4.1 Daily internal cleaning

At the end of a day's work carry out the instructions listed below.

- Completely empty the dishwasher tanks as indicated in par. J3.7 Door open.
- After draining the tanks, press the On/Off key ("A" - Table 2 Control panel) to switch off the dishwasher.
- Disconnect the electrical service.
- Close the water supply valves.
- Open the machine doors and remove the filters, overflows (Figure 37) and prewash, wash and rinse arms (Figure 38).
- Clean all parts carefully with hot water and neutral detergent/detersive, if necessary using a soft brush or a sponge.

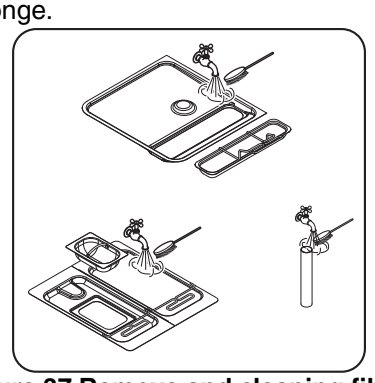


Figure 37 Remove and cleaning filters

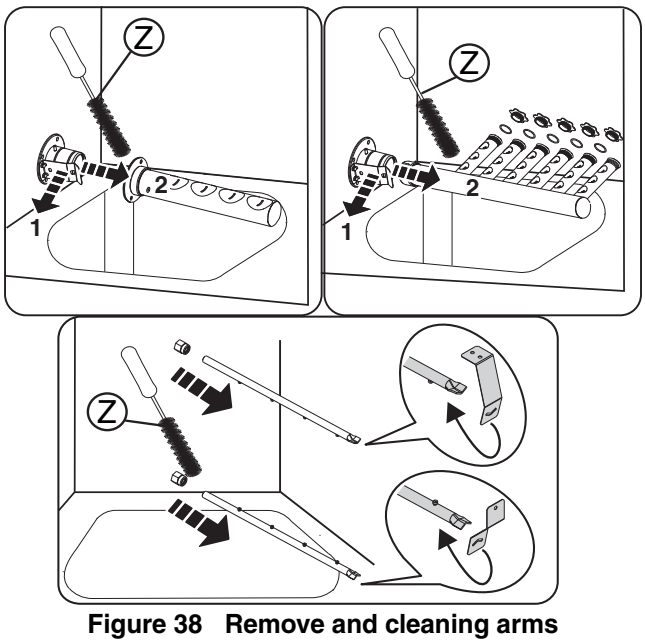


Figure 38 Remove and cleaning arms

- In particular, for prewash, wash and rinse arms use a warm soapy water and a soft brush “Z” (Figure 38).
- Remove and clean the curtains in the machine.
- Clean inside the machine, making sure to remove any food debris or detergent residuals.
- Clean the inside of doors with a damp cloth and detergent.
- At the end of cleaning operations, reassemble the unit.
- Close the machine door.

J4.2 Exterior cleaning

Clean the stainless-steel surfaces with lukewarm soapy water (do not use detergents containing abrasive substances, steel wool, brushes or scrapers in common steel) then rinse with a wet cloth and dry carefully.

J5 Long idle periods

Whenever the machine is not going to be used for a long period of time (e.g. one month), carefully carry out the following instructions.

- Completely empty the tanks as indicated in par. J3.6 Drain or Clean function.
- After draining the tanks, press the On/Off key (“A” - Table 2 Control panel) to switch off the dishwasher.
- Disconnect the electrical cable.
- Close the water supply valves.
- Clean the inside and outside of the machine as indicated in par. J4.1 Daily internal cleaning and J4.2 Exterior cleaning.
- Spread a film of paraffin oil over the steel surfaces.

When using the machine again, follow the indications in par. J3 Daily activation of machine.

J6 Maintenance

IMPORTANT

Before servicing, disconnect the electrical main switch and place a red tag at the disconnect switch to indicate work is being done on that circuit.

Inspection and maintenance intervals depend on the actual machine operating conditions (total wash hours) and ambient conditions (presence of dust, damp, etc.), therefore precise time intervals cannot be given. In any case, to minimize interruptions of the service, careful and periodical machine maintenance is advisable.

Therefore, it is advisable to:

- Descale the booster, inside surfaces of the tank and the machine piping once or twice a year (call technical assistance).
- Every month descale the prewash, wash and rinse jets with vinegar or scale remover.
- Once or twice a year clean the finned coil of the CU (call technical assistance).

It is also advisable to stipulate a scheduled preventive maintenance contract with technical assistance.

J7 Machine disposal

At the end of the product’s life cycle, make sure the equipment is not dispersed in the environment. The equipment must be disposed of in compliance with current regulations in the country of use.

All metal parts are in s/steel (AISI 304) and removable. Plastic parts are marked with the letters of the material.

The symbol  on the product indicates that this product should **not** be treated as domestic waste, but must be correctly disposed of in order to prevent possible negative consequences for the environment and the human health.

Regarding the recycling of this product, please contact the sales agent or dealer of your product, your after-sales service or the appropriate waste disposal service.

J8 Troubleshooting

THE DISHWASHER DOES NOT WASH PROPERLY
1. Check the suction filter in the wash tank and carefully clean it if dirty. 2. Make sure the wash arm jets are not clogged by solid residuals. 3. Make sure the initial quantity of detergent and/or subsequent additions are correct. 4. Make sure the modules making up the machine respect the recommended values given in the technical data table. 5. Make sure the dishes are correctly placed in the racks.
GLASSES AND DISHES ARE NOT PROPERLY DRIED
1. Make sure there is rinse aid in the container and top-off if necessary. 2. Make sure the water temperature of the rinse module is between 82°C - 90°C. 3. If present in the machine, check operation of the drying module (that hot air comes out). 4. Make sure the curtains are correctly positioned. 5. Make sure the dishes were not immersed in foamy detergent (e.g. hand wash detergent) before being put in the machine.
EXCESSIVE FOAM IN THE TANK
1. Make sure the washing module water temperature is not below the minimum recommended value given in the technical data table. 2. Make sure the tank has been cleaned with suitable detergents. 3. Empty the tank and carefully rinse before resuming work. 4. If a foaming detergent was used, empty and refill the tank with water until the foam has been removed.